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No. (1)

Supreme Court, U.S.
FILED
07-597 NOV 2 - 2007
OFFICE OF THE CLERK

In The
Supreme Court of the United States

UTILITY WATER ACT GROUP,

Petitioner,

v.

RIVERKEEPER, INC., *et al.*,

Respondents.

ON PETITION FOR WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

PETITION FOR WRIT OF CERTIORARI

Kristy A.N. Bulleit
Counsel of Record
HUNTON & WILLIAMS LLP
1900 K Street, NW
Washington, DC 20006
(202) 955-1547

Counsel for Petitioner

NOVEMBER 2, 2007

THE LEX GROUP DC • 1750 K Street N.W. • Suite 475 • Washington, DC 20006
(202) 955-0001 • (800) 815-3791 • Fax: (202) 955-0022 • www.thelexgroupdc.com

QUESTIONS PRESENTED FOR REVIEW

1. Whether § 316(b) of the Clean Water Act, 33 U.S.C. § 1326(b), which specifies that standards set under §§ 301 or 306 of the statute shall require that cooling water intake structures reflect the "best technology available for minimizing adverse environmental impact," prohibits the United States Environmental Protection Agency ("EPA") from considering the cost of a technology in comparison to the level of control it achieves and to the environmental "benefit" of that level of control?

2. Whether § 316(b) prohibits EPA from authorizing existing facilities to use restoration measures (for example, fish stocking or habitat restoration) that, taken collectively with the existing characteristics of the cooling water intake structure, ensure that the intake structure minimizes "adverse environmental impact"?

PARTIES TO THE PROCEEDING

The Utility Water Act Group ("UWAG") is a petitioner in this Court and was a petitioner in the court of appeals.

Appalachian Power Company, Illinois Energy Association, PSEG Fossil LLC, PSEG Nuclear LLC, and Entergy Corporation are respondents in this Court per Rule 12.6 and were petitioners in the court of appeals. PSEG Fossil LLC, PSEG Nuclear LLC, and Entergy Corporation are expected to be petitioners in this Court as well.

The United States Environmental Protection Agency is a respondent in this Court and was a respondent in the court of appeals.

The following parties are respondents in this Court and were petitioners in the court of appeals:

Riverkeeper, Inc.
Natural Resources Defense Council
Waterkeeper Alliance
Soundkeeper, Inc.
Scenic Hudson, Inc.
Save the Bay-People for Narragansett Bay
Friends of Casco Bay
American Littoral Society
Delaware Riverkeeper Network
Hackensack Riverkeeper, Inc.
New York/New Jersey Baykeeper
Santa Monica Baykeeper
San Diego Baykeeper
California Coastkeeper
Columbia Riverkeeper

Conservation Law Foundation
Surfrider Foundation

The following States are respondents in this Court and were petitioners in the court of appeals:

Connecticut
Delaware
Massachusetts
New Jersey
New York
Rhode Island

The industry parties, environmental groups, and States jointly petitioned to intervene in the other petitioners' cases on August 27, 2004.

CORPORATE DISCLOSURE STATEMENT

Pursuant to Rule 29.6 of the Rules of the Supreme Court of the United States, counsel for petitioner Utility Water Act Group hereby provides the following Disclosure Statement:

The Utility Water Act Group ("UWAG") is a voluntary, *ad hoc*, non-profit, unincorporated group of individual energy companies and national trade associations of energy companies. The individual energy companies operate power plants and other facilities that generate, transmit, and distribute electricity to residential, commercial, industrial, and institutional customers. UWAG's purpose is to participate on behalf of its members in EPA rulemakings under the Clean Water Act. UWAG is not a parent, subsidiary, or affiliate of any corporation or other entity that has issued shares or debt securities to the public.

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PETITION FOR A WRIT OF CERTIORARI

The Utility Water Act Group respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Second Circuit in this case.

OPINION BELOW

The opinion of the court of appeals (App. 1a-100a) is *Riverkeeper, Inc. v. U.S. Environmental Agency*, 475 F.3d 83 (2d Cir. 2007).

JURISDICTION

The judgment of the court of appeals was entered January 25, 2007. The court of appeals denied requests for rehearing and rehearing *en banc* on July 5, 2007. On September 25, 2007, Justice Ginsburg extended the time to file this petition until November 2, 2007. The jurisdiction of the Supreme Court is invoked under 28 U.S.C. § 1254(1).

STATUTORY AND REGULATORY PROVISIONS INVOLVED IN THIS CASE

This case involves § 316(b) of the Clean Water Act, 33 U.S.C. § 1326(b), as well as §§ 301, 304, and 306, 33 U.S.C. §§ 1311, 1314, 1316, and EPA § 316(b) regulations for "Phase II" facilities, 69 Fed. Reg.

41,576 *et seq.* (July 9, 2004),[1] codified at 40 C.F.R. §§ 122.21(r)(ii)(1), (2), (3), (5), 123.25(a)(4), (36), 124.10(d)(1)(x), and 125, Subpart J (125.90-99) (suspended by notice dated July 9, 2007, 72 Fed. Reg. 37,107). These statutory provisions and regulations are reproduced in the appendix to this petition (App. 103a-124a (statutory provisions); App. 124a-141a (regulations)).

STATEMENT

1. This petition addresses two issues critical to EPA's ability to achieve the objectives of the Clean Water Act using the fundamental principles it has applied for the past thirty years. First, the Second Circuit decided that § 316(b) – which applies to thousands of cooling water intake structures nationwide – prohibits EPA from weighing costs against environmental results in selecting the "best technology available for minimizing adverse environmental impact." This result has no basis in the statute and is inconsistent with longstanding First Circuit precedent on which EPA and state agencies have relied in making permitting decisions for nearly thirty years. Second, the Second Circuit decided that § 316(b) prohibits EPA from considering the beneficial effects of "restoration" measures in deciding whether existing cooling water intake structures have "minimiz[ed] adverse environmental impacts."

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[1] The Federal Register notice of the rule is too lengthy (118 pages) to include in the Appendix. UWAG will make it available if the Court requests.

2. To attain the objectives of the Clean Water Act, Congress established substantive requirements, overwhelmingly directed at pollutant discharges from industrial facilities. Only one – § 316(b), the provision at issue here – regulates intake structures through which water enters a plant.

Section 316(b) provides that any standard established pursuant to §§ 301 or 306 of the Clean Water Act (which call for technology-based limits to reduce pollutants in industrial wastewater) "shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b), App. 121a. The standards at issue here apply to existing power plants, for which the intake structure features already have been chosen, thus significantly constraining technological changes.

3. Cooling water is vital to many industrial facilities, but particularly to steam electric plants, which compose 53 percent of the Nation's generating capacity. Economic and Benefits Analysis, DCN 4-0002, at A3-13. The turbines of these plants are driven by steam which is then condensed by cooling water. The cooling water is withdrawn through a "cooling water intake structure" ("intake structure" or "CWIS"). The amount of cooling water depends on the design of the condenser cooling system. "Once-through" systems pass cooling water through the condenser once or twice before discharge. "Closed-cycle" systems cool the water, usually using a tower or pond, and reuse it several times before discharge.

When cooling water is pumped into a power plant, aquatic organisms can be carried with it. Larger biota may be swept against the intake screens and "impinged." Smaller organisms (*e.g.*, eggs, larvae, and other early life stages) are carried through the cooling system, *i.e.*, "entrained." Some of the impinged or entrained fish, but not all, will be killed. 69 Fed. Reg. 41,586/2, 41,620/2-3.

Whether operation of a cooling water intake structure will cause environmental effects, and if so what they will be, depends on factors that have nothing to do with the type of industry, its products, or its raw materials. The number and type of organisms in the source water, the time of year, and currents in the waterbody largely determine what numbers, life stages, and species of fish are impinged or entrained. A power plant is unlikely to impinge many fish if its CWIS is located in an area that is not desirable habitat or where fish do not dwell in the water column. See 69 Fed. Reg. 41,592/2. Impingement also may be low where the velocity of the intake water is such that fish can perceive and avoid it. 69 Fed. Reg. 41,601/3. A plant is unlikely to entrain many eggs and larvae if the intake is not near a spawning area, or if the eggs and larvae are not free-floating. 69 Fed. Reg. 41,612/2. Eggs and larvae will be entrained only during species-specific spawning seasons. 69 Fed. Reg. 41,616/2.

With existing plants, technologies that reduce impingement or entrainment may not be available given site and facility constraints. See 69 Fed. Reg. 41,603/2, 41,628/1 ("more limited availability of other technologies"). Some technologies which decrease impingement and entrainment create other

adverse environmental and social effects. Barrier nets that prevent organisms from entering areas around the intake may foreclose use of those areas as habitat by organisms not susceptible to the intake. Large in-stream screen assemblages may create hazards to navigation. Enlarging intake structures to reduce velocity may require construction in wetlands or shoreline habitat. And technologies that increase power needs or produce wastes or emissions may create adverse environmental and energy effects that far outweigh any environmental benefits from reducing impingement and entrainment.

Recirculating cooling systems often have such effects, most notably the energy penalties and increased air emissions associated with the increased cooling system power needs. 69 Fed. Reg. 41,605/2-3, 41,606-07. For example, the Department of Energy has determined that approximately twenty new 400-megawatt plants would be required to compensate for lost generating capacity associated with closed-cycle retrofit. *Id.*

4. EPA first published regulations implementing § 316(b) in 1976. 41 Fed. Reg. 17,387 (Apr. 26, 1976). They were struck down by the Fourth Circuit on procedural grounds. *Appalachian Power Co. v. Train*, 566 F.2d 451 (4th Cir. 1977). Thereafter, EPA and state agencies implemented § 316(b) by developing standards site-by-site, based on their "best professional judgment" ("BPJ"). 69 Fed. Reg. 41,584.

For thirty years, BPJ determinations have been shaped by principles embodied in precedent

and EPA guidance. First, § 316(b) does not require selecting the technology that most reduces impingement and entrainment mortality, if its cost would be wholly disproportionate to the benefits obtained (that is, the number of organisms spared or the effects of reduced losses on the waterbody). 69 Fed. Reg. 41,606/1, 41,626-27; EPA, *Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment: Section 316(b) P.L. 92-500* (Draft May 1, 1977); *In the Matter of Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2)*, NPDES Appeal No. 76-7, 1 E.A.D. 455, 1978 EPA App. LEXIS 17 (August 4, 1978), *aff'd, Seacoast Anti-Pollution League v. Costle*, 597 F.2d 306, 331 (1st Cir. 1979).

Second, in evaluating whether an existing CWIS reflects the best technology for "minimizing adverse environmental impact," the permitting agency may take into account measures that enhance the number, type, or condition of fish in the waterbody. These "restoration" or mitigation measures are designed to avoid or minimize "adverse environmental impact" resulting from impingement or entrainment. 69 Fed. Reg. 41,609/1, 41,627-28, 41,637/3; *see also infra* at 32.

5. In the mid-1990's, to resolve a lawsuit filed by environmental groups, EPA entered a consent decree obligating it to create § 316(b) regulations in three phases: Phase I (new facilities of all kinds, including new steam electric power plants); Phase II (electric power plants built before 2002 that withdraw over 50 million gallons per day of cooling water from the waters of the United States, as well

as expansions at such facilities); and Phase III (existing power plants and industrial facilities not subject to Phase II).[2] See 69 Fed. Reg. 41,583/3.

The Phase II regulations, and the Second Circuit's decision overturning the longstanding interpretation of § 316(b) reflected in those regulations and relied on by permitting agencies and power companies, are the subject of this petition.

EPA published final Phase II regulations on July 9, 2004, 69 Fed. Reg. 41,576, culminating a nine-year rulemaking during which the Agency and the regulated community spent millions of dollars to collect and analyze the biological, technological, and economic information on which EPA based its expert judgment. 69 Fed. Reg. 41,585. EPA estimates that the Phase II regulations apply to over 540 steam electric power plants. 69 Fed. Reg. 41,593/2. This is an important and far-reaching rule, by any measure.

a. To evaluate intake structure technologies and determine which were the "best" of those

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[2] EPA issued its § 316(b) determination for Phase III facilities on June 16, 2006. 71 Fed. Reg. 35,006. There, EPA determined that § 316(b) should continue to be implemented case-by-case for Phase III facilities (which encompass existing power plants and industry facilities not subject to Phase II), rather than by uniform standards. EPA reached this decision because the costs of applying uniform standards would be wholly disproportionate to the benefits. 71 Fed. Reg. 35,015/1. Environmental groups have filed petitions to review that rulemaking decision; those petitions have been consolidated in the Fifth Circuit. *ConocoPhillips Co., et al. v. EPA*, No. 06-60662 and consolidated cases.

"available," EPA "selected reductions in impingement and entrainment as a quick, certain, and consistent metric for determining performance at Phase II existing facilities." *Id.* at 41,586/1. The Agency then evaluated a variety of technologies to determine their ability to reduce impingement mortality and entrainment. One option considered was requiring all or some existing facilities with once-through cooling to retrofit closed-cycle systems. EPA recognized that retrofitting closed-cycle cooling at existing once-through units could reduce flow substantially – by EPA's estimate, 70-96 percent at facilities using salt water and 96-98 percent at facilities using fresh water. 69 Fed. Reg. 41,601 n.44. EPA estimated that flow reductions would achieve a comparable reduction in entrainment and, in some cases, impingement. 69 Fed. Reg. 41,612/2. Although recognizing that the range of reduction potentially achievable could be greater in some cases from closed-cycle cooling than from other technologies (barriers, behavioral devices, or screening), EPA chose not to base the Phase II standards on closed-cycle cooling. 69 Fed. Reg. 41,605/1.

EPA based its decision partly on its conclusion that "other technologies approach the performance of [closed-cycle cooling]" at about one-ninth the cost of closed-cycle cooling. *Id.*; *cf.* 69 Fed. Reg. 41,605/2 to 41,650/2. Other factors also influenced EPA's decision: the huge plant-specific and national cost of retrofitting existing facilities with cooling towers and their potential to cause plant closures; the energy penalties associated with retrofitting existing facilities and the resulting risks to national energy reliability; increases in air emissions from additional

generation needed to compensate for such penalties; the fact that retrofitting would be physically impossible at some plants; and other adverse effects such as fog, icing, and noise. See 69 Fed. Reg. 41,606.

b. EPA found that "best technology" varies among sites but is reflected by national performance standards that require reducing impingement mortality 80-95%. 40 C.F.R. § 125.94(b)(1), App. 132a, 69 Fed. Reg. 41,686/1. At many sites, the standards also require entrainment to be reduced 60-90%. 40 C.F.R. § 125.94(b)(2), App. 132a, 69 Fed. Reg. 41,686. These standards reflect EPA's judgment that, "given the wide range of various factors that affect the environmental impact posed by Phase II existing facilities, different technologies or different combinations of technologies can be used and optimized to achieve the performance standards." 69 Fed. Reg. 41,598/2.

c. EPA provided various compliance options, including setting alternative standards where site conditions justified different treatment. Notably, EPA allowed site-specific standards to be set where the costs of meeting the national standards would be substantially greater than the benefits. 40 C.F.R. §§ 125.94(a)(5)(ii), App. 131a, 125.95(b)(6)(ii), App. 140a, 69 Fed. Reg. 41,685-86. This provides the rule's only mechanism for testing EPA's assumption that the net environmental benefits of reducing impingement mortality and entrainment will outweigh other adverse environmental impacts created by an intake alternative. The rule provides detailed instructions for assessing benefits both

quantitatively (in economic terms) and qualitatively. *Id.*

This provision reflects EPA's recognition that its national estimate of impingement mortality and entrainment levels at Phase II plants was unlikely to hold true for all sites. Thus, "because of the location of the intake, the characteristics of a particular waterbody, or the behavioral patterns of the fish or shellfish in that particular waterbody, there may be little or no impingement mortality or entrainment occurring at the site." 69 Fed. Reg. 41,604/1. The Agency found legal authority for site-specific requirements taking costs and benefits into account in the statute and its legislative history, as well as EPA's longstanding interpretation of § 316(b), which had been approved by the First Circuit in *Seacoast*. 69 Fed. Reg. 41,625-27.

Further, instead of requiring changes in intake hardware, EPA allowed use of restoration measures capable of achieving in-stream substantially the same environmental benefits that would result from reducing impingement mortality and entrainment. The record shows that such measures can, in appropriate cases, be superior to hardware changes, because they can be scaled to more than make up for losses, can produce or protect more important species, and often last longer than the life of the facility. See New Jersey Department of Environmental Protection ("NJDEP") Comment 2.002 at 24; New Jersey Department of Environmental Protection and Energy, Response to Comments Document, PSEG Salem Generating Station NJPDES/DSW Draft Permit NJ0005622, at 13-14, DCN:1-5024-PR; USEPA Phase I Response to

Comments (Author Version), 508.011. Restoration is available only where the permittee shows that such measures are "more feasible, cost-effective, or environmentally desirable" than changing the location, design, construction, and capacity of the existing cooling water intake structure. 69 Fed. Reg. 41,638/1; see 40 C.F.R. § 125.94(c)(1), App. 134a. For over two decades, facilities have made extensive investments in restoration projects, based on EPA's authorization of restoration measures under § 316(b).

EPA recognized that the Second Circuit, in an earlier case involving the Phase I regulations for new facilities (*Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 189-91 (2d Cir. 2004) (*Riverkeeper I*)), concluded that § 316(b) does not authorize restoration for new facilities. EPA explained in detail why that decision did not determine the outcome for existing facilities. EPA noted that the Second Circuit itself had explicitly stated that "[i]n no way [does it] mean to predetermine the factors and standard applicable to Phase II and III of the rulemaking." 69 Fed. Reg. 41,628/1 (citations omitted). EPA then explained why restoration is consistent both with the overarching objective of the Act and with the terms of § 316(b) itself, especially the broad injunction to "minimize adverse environmental impact." 69 Fed. Reg. 41,627-28. Further, it concluded that restoration is consistent with longstanding federal and state interpretation and application of § 316(b) (69 Fed. Reg. 41,627/3) and is necessary given the narrower range and higher cost of hardware options available to existing facilities. 69 Fed. Reg. 41,628/1.

6. Environmental groups and several Northeastern states, as well as three power companies, a State energy association, and UWAG, sought review of the Phase II rule, albeit on different grounds. Petitions for review were filed in several different circuits, pursuant to § 509(b)(1)(E) of the Clean Water Act, 33 U.S.C. § 1369(b)(1)(E), and, ultimately, consolidated in the Second Circuit.

7. The Second Circuit reversed and remanded virtually every important feature of the Phase II regulation. The court (1) narrowly prescribed how EPA may consider costs for purposes of selecting the best technology available at the national level, (2) prohibited EPA from allowing any site-specific consideration of costs and benefits in determining what intake technology best minimizes adverse environmental impacts, and (3) prohibited consideration of restoration efforts that reduce or eliminate the environmental impacts of impingment and entrainment in assessing whether an existing intake "minimizes adverse environmental impact."

a. On both cost issues, the Second Circuit recognized that § 316(b) "does not itself set forth ... the specific factors that the EPA must consider in determining" what technology is "BTA." App. 24a-25a. Indeed, the court in *Riverkeeper I* had emphasized that § 316(b) is *suorum generum*; it concluded that the paucity of legislative history, combined with the brevity of the section itself, "counsels against imputing much specific intent to Congress beyond the section's words themselves." *Riverkeeper I*, 358 F.3d at 187 n.12. Thus, "[t]o the extent the provision is silent on issues to which other sections speak, we hesitate to draw the negative

inference that the brevity of section 316(b) reflects an intention to limit the EPA's authority rather than a desire to delegate significant rulemaking authority to the Agency." *Id.*

Faced with the palpable ambiguity of § 316(b), the Second Circuit in *Riverkeeper II*, after reciting the standard of review this Court articulated in *Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842-43 (1984), proceeded to substitute its own interpretation of the Act for EPA's. Based primarily on its reading of §§ 301 and 306, the court concluded that consideration of cost-benefit analysis "was not 'based on a permissible construction of the statute.'" App. 41a. According to the Second Circuit, § 316(b) requires EPA first to identify the technology that most effectively reduces impingement and entrainment (based on the optimally performing, not the average, facility) and can "reasonably be borne" by the industry. App. 30a. EPA then may base its standards on a less costly technology only if the level of performance achievable by that technology is "essentially the same" as the more costly technology. App. 31a. This approach, the court says, constitutes the *only* allowable "cost-effectiveness" analysis. App. 30a-31a.

Based on this interpretation, the court held that EPA violated the statute if it selected BTA based partly on its determination that the marginal difference between the levels of impingement mortality and entrainment reduction achievable by closed-cycle cooling was insufficient to justify the marginal increase in cost and significant decrease in generating capacity compared with other technology

alternatives. App. 41a. The court concluded that this analysis, which EPA explained is the same type of cost-effectiveness analysis it uses to set other technology-based guidelines and standards (see Final Brief for Respondents at 54 (April 17, 2006)), was an impermissible "cost-benefit" analysis. Having reached the conclusion that even weighing cost and performance was impermissible when setting the national standards, the court also struck down the compliance alternative of evaluating site-specific costs and benefits. App. 62a. For ease of reference, we will refer to both these issues as involving "cost-benefit" analysis, although in truth they involve distinct methods of weighing costs against results.

The Second Circuit reached this conclusion based not on any statement in § 316(b) or its legislative history, but instead on the court's own interpretation of different statutory provisions (§§ 301, 304, and 306) that govern effluent guidelines for pollutant discharges. App. 24a-27a. Those provisions, it said, constrain EPA's discretion.

The court claimed to find support for this proposition in *Riverkeeper I*, even though the earlier panel interpreted both §§ 301 and 306 (to which the court said EPA could look for guidance) as allowing EPA to weigh costs and results. There, the Second Circuit rejected claims that § 316(b) required EPA to select "dry cooling" as BTA for new facilities because dry cooling, although 95% more effective at reducing entrainment, also was ten times as expensive as wet closed-cycle cooling. *Riverkeeper I*, 358 F.3d at 194 nn.22-23. The court characterized the marginal improvement, compared to anticipated once-through

levels, as "a relatively small improvement ... at a very significant cost." *Id.* at 195. Citing § 306's instruction that EPA consider "the cost of achieving such effluent reduction," the panel concluded that EPA could weigh the cost of technologies and the "level of reduction" they achieve (that is, their "benefit") in deciding which was best. *Id.* (citing *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 802 (6th Cir. 1995)).

Industry petitioners' May 11, 2007 requests for rehearing and rehearing *en banc* highlighted this inconsistency, but they were denied July 5, 2007. App. 102a. Thus, the Second Circuit appears to have embraced the new and radical interpretation of the statute of *Riverkeeper II*.

The Second Circuit's interpretation of § 316(b) conflicts with the First Circuit's in *Seacoast*. The decision also conflicts with the decisions of other circuits construing §§ 301, 304, and 306.

b. The court's determination on restoration reflects a similar lack of consideration for the terms and purpose of § 316(b), and lack of deference to EPA's longstanding interpretation of the statute and prevailing precedent. Citing the decision in *Riverkeeper I* for new facilities (which the panel in *Riverkeeper II* viewed as dispositive), the court reasoned that § 316(b) prohibits restoration measures because they "are not part of the location, design, construction, or capacity of cooling water intake structures, ... and a rule permitting compliance with the statute through restoration measures allows facilities to avoid adopting *any* cooling water intake structure technology at all...."

App. 53a (emphasis in original). The court rejected EPA's determination that existing facilities, which already have intake structures in place, have less flexibility, and thus require a different approach. The court also dismissed with little analysis EPA's decision that § 316(b)'s directive to "minimize adverse environmental impact" affords the Agency discretion to determine that a facility has met the standard where it has compensated for impingement and entrainment using restoration measures.

8. Because of the Second Circuit's decision, on July 9, 2007, EPA suspended virtually all the Phase II rule. 72 Fed. Reg. 37,107 (July 9, 2007). The only part not suspended is 40 C.F.R. § 125.90(b), which directs permit writers to develop BPJ controls for existing CWIS not subject to categorical § 316(b) regulations. Thus, 543 Phase II facilities will now be regulated case-by-case.

REASONS FOR GRANTING THE PETITION

I. The "Cost-Benefit" Issue

This case presents an important issue having ramifications far beyond § 316(b). That is, when Congress instructs EPA to identify the "best" technology "available" to achieve an outcome (minimization of adverse environmental impact), has it thereby shown a clear intent to strip EPA of any discretion to weigh costs against the level of performance achieved or the marginal environmental "benefit" of that performance? The Second Circuit, ignoring decisions of other circuits and its own precedent, said that is what Congress intended. The Second Circuit's ruling compels EPA

to use tunnel vision when it considers costs in setting BTA standards.

That ruling is erroneous. It is not based on § 316(b)'s plain language or its legislative history. Rather, it is based on the Second Circuit's own new and highly selective interpretation of different statutory provisions referenced by § 316(b), despite the fact that those provisions have a different structure, use different terms, and specify a different objective to address a different type of activity. That interpretation is unsupported even by the Second Circuit's own earlier interpretation of § 316(b) in *Riverkeeper I*, which properly concluded that EPA could reject an intake technology for new facilities that was more effective, but far more costly, than the technology ultimately chosen. Equally important, the court's interpretation is unsupported by the statutes on which the court relies (§§ 301, 304, and 306) or the decisions of other circuits construing those provisions.

Consequently, the Second Circuit ruling creates a double conflict. First, it creates a conflict with the First Circuit, whose decision in *Seacoast* has been good law for nearly three decades. Second, it creates a conflict in principle with the Fifth, Sixth, and D.C. Circuits, which recognize that other Clean Water Act provisions directing EPA to set effluent limitations reflecting the "best available technology," although not requiring cost-benefit analysis, nevertheless afford EPA broad discretion to consider cost, performance, and other factors.

The Second Circuit's decision also has serious implications for EPA's Phase III determination. *See*

infra at 29. Appeals of that determination now pending in the Fifth Circuit raise *precisely the same issue*; yet, because of the procedural juxtaposition of that case with this one, even if the Fifth Circuit disagrees with the Second, neither the government nor UWAG will have the right to ask this Court to resolve the further split among the circuits.

Equally important, until EPA can complete a new rulemaking, the uncertainty created by this split in the circuits will have widespread consequences for administration of the NPDES permit process for hundreds of Phase II and Phase III facilities, because § 316(b) continues to apply nationwide even without uniform standards. And, should the Second Circuit's new legal standard ultimately result in a rule that requires existing plants to retrofit cooling towers, the national energy, environmental, and economic implications would be enormous.

Review by the Court on this issue therefore is warranted by the errors in the Second Circuit's ruling; the conflict it creates with other circuit decisions interpreting not only § 316(b) but also §§ 301, 304, and 306; the need to provide clarity to the Fifth Circuit in the Phase III case; the cost to permittees and regulators and the permitting delays the Second Circuit's decision will generate as permit writers and reviewing courts nationwide struggle to decide which circuit's interpretation of § 316(b) to follow; and the national energy, environmental, and economic implications of the decision and the constraints it imposes as EPA rewrites its regulations to conform with the decision.

A. The Plain Language of § 316(b) Does Not Contradict, and the Legislative History Supports, an "Economic Practicability" Test

Section 316(b) calls only for features of intake structures to reflect the "best technology available for minimizing adverse environmental impact." Nothing in that section limits EPA's ability to consider and weigh costs against other factors such as the level of performance or the environmental benefit of that performance. Given § 316(b)'s ambiguity, under *Chevron* EPA's interpretation was entitled to deference. The Second Circuit gave it none.

Moreover, the only apposite legislative history supports EPA's interpretation, saying that best technology available means "best technology available commercially at an economically practicable cost." 118 Cong. Rec. 33,762 (1972), *reprinted in* A Legislative History of the Water Pollution Control Act Amendments of 1972, at 264 (1973) (statement of Congressman Don H. Clausen). The Second Circuit rejected this statement (App. 34a), though Congressman Clausen was a member of the conference managers group for the statute.

B. The First Circuit Affirmed EPA's Consideration of Costs In Comparison to Results

Other courts have upheld EPA's authority to weigh costs against environmental results under § 316(b). The First Circuit – the only other circuit that has decided the § 316(b) issue presented here –

upheld EPA's authority to weigh costs against environmental results in implementing § 316(b). Its 1979 decision in *Seacoast* (as well as the EPA administrative decisions on which it was based) focused properly on the specific terms of § 316(b) and its legislative history, concluding that § 316(b) authorizes EPA to consider both costs and benefits (whether in terms of the number of organisms saved or the effect of impingement and entrainment on affected populations) when it selects "best technology available for minimizing adverse environmental impact."

The *Seacoast* case arose from the EPA Administrator's decision *In the Matter of Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2)*, NPDES Appeal No. 76-7, 1 E.A.D. 455, 1978 EPA App. LEXIS 17 (August 4, 1978). The proposed intake for the Seabrook Station was about 7,000 feet offshore in 58 feet of water. An environmental group argued that the intake tunnel should be extended another 4,000 feet to water 75 feet deep. EPA's Administrator decided that moving the intake structure "could result in undesirable environmental consequences and be very expensive and time-consuming" and that not much would be gained in terms of minimizing adverse effects. *Id.* at n.22. His conclusion was based squarely on a comparison of costs to benefits:

> I conclude that, based on this record, the costs of any further movement of the intake beyond the presently proposed far site location would be wholly disproportionate to any environmental benefit.

Id. at 66. The First Circuit Court of Appeals affirmed, embracing the "wholly disproportionate" approach of the Administrator and adding:

> Petitioners, wisely, do not argue that the cost may not be considered, and no harm is done by noting that there would be other costs. The legislative history clearly makes cost an acceptable consideration in determining whether the intake design "reflect(s) the best technology available" [footnote omitted].

Seacoast Anti-Pollution League v. Costle, 597 F.2d 306, 311 (1st Cir. 1979); *accord United States Steel Corp. v. Train*, 556 F.2d 822, 850 (7th Cir. 1977) ("we trust that EPA will conduct a limited cost-benefit analysis" under § 316(b)).

In permitting decisions over the past thirty years, EPA and the states have relied on the "wholly disproportionate" test in *Seacoast* in making § 316(b) decisions. *E.g.*, *Boston Edison Co. (Pilgrim Power Plant)*, Determination Regarding Issuance of Proposed NPDES Permit No. MA0025135 at 19 (EPA Region I 1977) ("decision regarding the required degree of minimization calls for a determination that the costs involved are not wholly out of proportion to the adverse environmental impact being avoided"); *Florida Power Corp. (Crystal River Power Plant)*, NPDES No. FL0000159 (EPA Region IV 1988), DCN:2-025N (closed-cycle cooling costs "wholly disproportionate" to environmental benefits; permit required intake flow reduction and fish hatchery instead); *Tennessee Valley Authority*

(John Sevier Steam Plant), NPDES No. TN0005436 (EPA Region 1986), DCN:2-025J (costs associated with intake modification "would be wholly disproportionate to the anticipated benefits"; different measures, primarily restoration, required instead); *Potomac Electric Power Company (Chalk Point Generating Station)*, NPDES No. MD0002658B (Maryland DNR 1987), DCN:1-5023-PR (cost of closed-cycle cooling "exceedingly high" compared to benefits; fish stocking and removal of barriers to fish migration required instead); *Fact Sheet for Draft NJPDES Permit Renewal Including Section 316(a) Variance Determination and Section 316(b) "BTA" Decision*, (NJ DEPE 1993), DCN:2-025E ("estimated cost of closed cycle cooling is wholly disproportionate to the environmental benefit to be realized"; wetland restoration, fish ladders, and baywide biological monitoring required instead).

After *Seacoast*, no challenge to the wholly disproportionate test has been brought in any federal court, nor are we aware of any in a state court. The cost-benefit test is established law, repeatedly applied and never challenged. It has been relied on by EPA, state permitting agencies, and the power industry as foundation of § 316(b) for almost thirty years.

Instead of following its own previous decision and the First Circuit's decision in *Seacoast*, the Second Circuit has now chosen to go in a new and wholly unsupported direction, thereby creating a split between the First and Second Circuits.

Rather than reviewing EPA's well-founded interpretation of § 316(b) by looking to the terms and

history of the section itself, the court relied on its own erroneous interpretation of the language, structure, and history of Clean Water Act §§ 301, 304, and 306. Those sections, unlike § 316(b), list the factors that EPA must at a minimum consider when setting standards for reducing pollutant discharges. The *Riverkeeper I* panel concluded that those sections, while providing helpful guidance, were not binding. 358 F.3d at 187. *Riverkeeper II* concluded otherwise and, compounding the error, ignored the broad reservation of authority explicitly conferred by those sections.

The court focused on Congress's use of "available" in § 316(b) and other statutory provisions. Its reasoning went something like this: The statutes governing effluent limitations reflecting "best practicable control technology currently available" (BPT) (§§ 301(b)(1)(A) and 304(b)(1)) specifically require EPA to compare costs to effluent reduction benefits. The statutory provisions (§§ 301(b)(2)(B) and 304(b)(2)) governing effluent limitations reflecting the "best available technology economically achievable" (BAT) do not. Instead, the BAT provisions instruct EPA to consider "the cost of achieving such effluent reduction." Since Congress specifically required comparison of costs and effluent reduction benefits in the BPT provisions, but not in the BAT provisions, the court concluded Congress must have forbidden weighing costs and benefits when EPA adopts BAT limits. And, because Congress used the words "best," "available," and "technology" in both § 316(b) and the BAT provisions (as well as in the BPT provisions – a fact the Second Circuit ignored), Congress also must have intended to prescribe a wholly "technology-driven" result

(App. 29a), with which the court said any "cost-benefit analysis" would be inconsistent. App. 31a-32a.

However, as this Court has stressed repeatedly in recent decisions, Congress's use of the same word or phrase in different provisions within the same statute is not determinative, even where there is a specific cross-reference. *Envtl. Def. v. Duke Energy Corp.*, 127 S. Ct. 1423, 1437-38 (2007); *S. D. Warren Co. v. Maine Bd. of Envtl. Prot.*, 126 S. Ct. 1843, 1848 (2006). The Second Circuit ignored that instruction here.

Instead, it mistakenly relied on this Court's holdings in *Russello v. United States*, 464 U.S. 16, 23 (1983), and *American Textile Manufacturers Institute v. Donovan*, 452 U.S. 490 (1981). It looked to *Russello* to support its view that the omission of "practicable" from § 316(b) was determinative. App. 35a-36a. But *Russello* does not apply when the statute confers discretion on the administrative agency or when other provisions of the statute are directed at a markedly different type of regulatory program.

It cited *American Textile* for the proposition that cost-benefit analysis is prohibited absent a specific Congressional authorization. App. 63a. Here too, its reliance is misplaced, as the Court there held only that cost-benefit analysis was not *required* absent a clear Congressional statement to the contrary. *American Textile*, 452 U.S. at 509-12. *See also NRDC v. EPA*, 824 F.2d 1146, 1159 n.6 (D.C. Cir. 1987) (en banc) ("*American Textile* would seem to be limited to the finding that ... the agency is

not *required* to employ cost-benefit analysis.") (emphasis added); *Massachusetts v. Hayes*, 691 F.2d 57, 61 n.4 (1st Cir. 1982) ("The Court there held only that the statute ... did not *require* ... cost/benefit analysis").

By conflating § 316(b) with the effluent guidelines provisions, the court ignored fundamental differences between the two regulatory schemes. As *Riverkeeper I* recognized, § 316(b) is the only section applicable to intake structures rather than to effluents; it sets a standard markedly different from those used in §§ 301 and 306 – *one that focuses specifically on environmental impacts*; it is structurally different from those sections, in that it does not specifically anticipate increasingly stringent levels of control; it is located in a separate section concerned generally with the uniqueness of heat as a pollutant; and it lacks the explanatory detail which accompanies the sections governing effluents. *Riverkeeper I*, 358 F.3d at 186-87. EPA acknowledged both the similarities and the differences between § 316(b) and the other sections and explained why, in light of the record evidence, its interpretation was appropriate to the terms of § 316(b).

C. The BAT/NSPS Requirements Do Not Compel the Second Circuit's Decision on Costs, and Other Circuits Have Disagreed

Even if the Second Circuit were justified in substituting its judgment for EPA's based on the court's interpretation of other statutory provisions governing different regulatory programs, that

interpretation was itself erroneous for several reasons. First, nothing in the BAT or NSPS provisions either compels or forbids EPA to weigh costs against effluent reductions or environmental results. Indeed, § 304(b)(2)(B) tells *EPA* to "specify factors to be taken into account in determining" BAT, identifying "the cost of achieving such effluent reduction" as one such factor. 33 U.S.C. § 1314(b)(2)(B), App. 114a. Further, it explicitly authorizes EPA to specify "such other factors as the Administrator deems appropriate." *Id.* This broad reservation of authority suggests that EPA retains discretion to weigh costs against "benefits" in appropriate cases. *See Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1046 (D.C. Cir. 1978) (section 304 "cannot logically be interpreted to impose on EPA a specific structure of consideration or set of weights because it gave EPA authority to 'upset' any such structure by exercising its discretion to add new factors to the mix").

Indeed, the 1977 addition of § 301(g) is an explicit signal of Congress's intent that EPA weigh costs and water quality benefits to avoid unnecessary treatment for treatment's sake by existing facilities. 33 U.S.C. § 1311(g). Section 301(g) provides a variance from BAT limits for non-toxic, non-conventional pollutants where the discharger can show that relaxed limits will, *inter alia*, protect water quality.

The Second Circuit ignored all these statutory signals, instead overruling EPA's judgment that comparing costs and benefits is an "appropriate" factor here. Other courts, including the Third Circuit in *Consolidated Rail Corp. v. United States*,

855 F.2d 78, 85-86 (3d Cir. 1988), have recognized that an agency is entitled to *Chevron* deference when determining whether a statute permits cost-benefit analysis.

To support its interpretation of the BAT provisions, the Second Circuit cited this Court's decision in *EPA v. National Crushed Stone Ass'n*, 449 U.S. 64, 71 n.10 (1980). App. 26a. Here, too, it was wrong. In *National Crushed Stone*, the Court considered what economic factors EPA must consider when deciding whether a variance from "best practicable technology" ("BPT") guidelines is warranted. The Court was not called on to decide nor did it opine on whether the BAT provisions, which do not require cost-benefit balancing, nevertheless afford EPA discretion to weigh costs and benefits as the Agency deems necessary.

Second, the Second Circuit's decision is directly at odds with decisions of many circuits that have upheld EPA's discretion to weigh costs and results or "benefits" in selecting BAT. Indeed, although several courts have held that EPA is not *required* to do a cost-benefit analysis under §§ 301, 304, and 306, *no* court until now has said EPA is *forbidden* to do cost-benefit analysis. Instead, both the statute and the case law call for deference to EPA's judgment about how costs and environmental benefits should be taken into account.

Most notably, in *BP Exploration & Oil, Inc. v. EPA*, 66 F.3d 784, 796-97 (6th Cir. 1995), the Sixth Circuit, relying on a D.C. Circuit case, held that EPA has discretion to use cost-benefit analysis in making "best available technology" (BAT) determinations.

The Sixth Circuit explained that Congress "left EPA with discretion to decide how to account for the consideration factors, and how much weight to give each factor." *Id.* at 796. Because these "consideration factors" included costs and benefits, the Sixth Circuit held that environmental petitioners were "wrong to contend that EPA is not permitted to balance factors such as cost against effluent reduction benefits." *Id.* (*citing Weyerhaeuser Co.*, 590 F.2d at 1045); *see also Am. Petrol. Inst. v. EPA*, 787 F.2d 965, 972 (5th Cir. 1986) (EPA would "disserve its mandate" if it imposed "possibly disabling costs" in return for removing only "de minimis" amounts of pollutants); *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 563 (D.C. Cir. 2002) (EPA need not on its own undertake more than a "net cost-benefit balancing"). The Second Circuit itself cited *BP Oil* and *National Wildlife* with approval in *Riverkeeper I*, 358 F.3d at 195, yet failed in *Riverkeeper II* to convincingly distinguish those cases or its own past decision. App. 28a-30a.

This Court should grant certiorari to resolve this conflict in principle on the interpretation of §§ 301, 304, and 306. If it does not, EPA and reviewing courts will be forced to choose between the majority approach to considering costs in setting effluent limitation guidelines and the *Riverkeeper II* approach. Moreover, if this conflict festers, any effluent limitation guideline may be subject to a different legal standard depending on where a petition for review is heard.

D. The Split in the Circuits Will Cause Serious Problems

Review by this Court also is essential to avoid the disruption of the NPDES permit process for hundreds of power plants and industrial facilities nationwide and to ensure that § 316(b) is interpreted consistently from one facility to another.

Because of the Second Circuit's decision, EPA is considering another rulemaking. Even if EPA makes that rulemaking a priority, it will take time. In any case, until EPA decides how to proceed, state and federal permit writers must continue to make BPJ § 316(b) determinations for the over 540 facilities covered by the Phase II rule. EPA's Phase III determination also calls for BPJ decisions for over 140 industrial and power plants. 71 Fed. Reg. 35,017/3.

In each case, the permit writer will have to decide which circuit's interpretation of the statute to follow. Inevitably, this uncertainty will lead to permitting authorities applying different legal standards under § 316(b) to sources across the country. Such asymmetrical application of § 316(b) will increase the likelihood that permits will be challenged. Reviewing courts will then be forced to choose between the *Riverkeeper II* and *Seacoast* interpretations of § 316(b). Review by this Court will avoid that inconsistency, delay, and litigation.

Moreover, the Court of Appeals for the Fifth Circuit must now rule on petitions for review raising *precisely the same issue* with respect to the Phase III rule. The government has argued forcefully in that

case that the Second Circuit was wrong. Perversely, if the Fifth Circuit rejects the Second Circuit's reasoning, only the environmental petitioners will have the right to seek this Court's review. Unless they choose to exercise that right, § 316(b) would be interpreted and implemented differently for existing power plants (which fall within either Phase II or III based on the amount of flow they require) solely on the order in which EPA adopted the rules and the circuits reached their decisions. In this circumstance, granting certiorari is essential to promote proper judicial administration and prevent disparate treatment of similarly situated plants.

II. Restoration

In equally peremptory fashion, the Second Circuit concluded that § 316(b) bars EPA from counting improvements to a waterbody that increase the supply of fish ("restoration") when considering whether "adverse environmental impact" is "minimized." This strips EPA of a tool that has long been used under § 316(b) and that the Agency concluded is necessary to achieve § 316(b)'s mandate and the objectives of the Act. It also conflicts with the analysis underlying the First Circuit's decision in *Seacoast*, and with agency and judicial interpretations of similar provisions in § 404 of the Act. Thus, review by this Court is warranted.

A. Restoration Is Compatible with the Words of § 316(b), as the *Seacoast* Decision Recognized

EPA made a reasoned judgment that § 316(b) taken as a whole is ambiguous and could reasonably

be interpreted to allow mitigation or "restoration" for several reasons. 69 Fed. Reg. 41,628/2. First, nothing in the statute instructs EPA to evaluate intake location, design, or any other feature in the abstract, without reference to water quality. Section 316(b)'s objective is to minimize "adverse environmental impact" – a term that encompasses water quality and does not focus on reducing any specific type of stressor or impact. *Id.; see also* 69 Fed. Reg. 41,586/3, 41,612/1. Thus, in-stream measures that ameliorate the risk of adverse environmental impact stemming from impingement and entrainment are consistent with the "plain language" of the statute.

The First Circuit recognized this principle in *Seacoast* by affirming EPA's discretion to measure "adverse environmental impact" at the level of fish populations, rather than individual fish. *See Seacoast*, 597 F.2d at 309-11. If EPA has this discretion, it necessarily has authority to determine that restoration – which typically minimizes the loss of fish through replacement and thus minimizes "adverse environmental impact" – is a lawful compliance option.

Second, EPA focused on Congress's instruction that intake structure features such as location and design "reflect" BTA, and the absence of any statutory definition of "technology" or "cooling water intake structure." It reasoned that those attributes allow the Agency to consider both technologies which are incorporated into the intake structure and those which are physically independent but nevertheless influence the use and effectiveness of the structure. EPA gave as examples barrier nets and closed-cycle

cooling, neither of which is part of the CWIS but which nevertheless influence the environmental effects of the CWIS. 69 Fed. Reg. 41,628.

Third, EPA explained that the rule deals with *existing* intake structures. Congress has consistently recognized that existing facilities have limited options for minimizing their impacts, thus meriting a broader range of approaches. 69 Fed. Reg. 41,628/1. For an existing plant, the task is not to decide what features the intake structure must possess in the first instance; those features have already been decided. Rather, the question is whether existing features need to be changed to "minimize adverse environmental impact." Nothing in § 316(b) limits EPA's authority to decide that "environmental impacts" from an existing intake either are not adverse or have been otherwise minimized.

Fourth, use of restoration is consistent with EPA's longstanding interpretation of the statute, as reflected in the fact that federal and state permit writers for years have considered restoration in assessing whether impingement mortality and entrainment are causing adverse environmental impacts. 69 Fed. Reg. 41,627-28; *see also Barnhart v. Walton*, 535 U.S. 212, 220 (2002) (particular deference to an agency interpretation of longstanding duration). By deciding to focus on impingement and entrainment in setting § 316(b) standards, EPA did not, as the Second Circuit appears to assume, lose its authority to decide how "adverse environmental impact" should be evaluated. That is precisely what EPA did by taking restoration measures into account. Such measures

are part of the environment to be considered in determining whether a CWIS is having adverse effect. Indeed, nothing in § 316(b) suggests EPA must focus exclusively on minimizing impingement and entrainment, as the *Riverkeeper I* panel acknowledged. *See Riverkeeper I*, 358 F.3d at 196. If that is what Congress had intended, it could easily have said so. Instead, the "plain language" leaves EPA discretion to consider the net result of impingement and entrainment or other intake technology effects on the broader "environment."

The Second Circuit split with the First Circuit when it overruled EPA's interpretation of the statute. It ignored EPA's interpretation of "adverse environmental impact," see App. 52a-53a, instead treating that phrase as a surrogate for impingement and entrainment. App. 51a-52a. It also dismissed the Agency's construction of other statutory terms, finding instead that the Act requires a purely "technology-driven" approach focused solely on changes to the CWIS. App. 29a, 53a. And it dismissed EPA's explanation of the inextricable link between waterbody characteristics (which restoration enhances) and intake impacts on the environment, holding that § 316(b) forbids consideration of water quality effects. App. 63a-64a. To reach this conclusion, the court again relied heavily on its interpretation of §§ 301 and 306, which it construed as barring consideration of water quality. App. 52a, 63a.

B. Like § 316(b), the BAT/NSPS Provisions Allow EPA to Consider Ambient Conditions

The Second Circuit's assumption that EPA is forbidden from considering water quality when it sets technology-based requirements for pollutant discharges is similarly unfounded. Indeed, several circuits have upheld EPA's authority to consider water quality both in deciding whether to establish guidelines and in evaluating technologies. For example, in *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 566 (D.C. Cir. 2002), the D.C. Circuit upheld EPA's decision to regulate "color" pollutants case-by-case because the Agency found that the potential for significant aesthetic or aquatic impacts from color discharges is driven by site-specific conditions. Likewise, in *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 515 (2d Cir. 2005), the Second Circuit allowed EPA to regulate case-by-case because variability and topography, climate, distance to surface water, and geologic factors influence whether and how pollutant discharges at a particular site enter surface water by way of groundwater. *Id.* at 515. And in *Citizens Coal Council v. EPA*, 447 F.3d 879, 902-03 (6th Cir. 2006), the Sixth Circuit affirmed EPA's rejection of sedimentation ponds as treatment for settleable solids because the ponds could disrupt the natural sediment and hydrologic balance, cause stream channel instability, and increase evaporative losses.

C. Other Parts of the Clean Water Act, Including its "Objectives," Support EPA's Interpretation

EPA's decision to allow restoration also finds support in the objectives of the statute, and in agency and judicial interpretations of § 404, which like § 316(b) instructs EPA and the Army Corps of Engineers to ensure that "adverse environmental impacts" from a specific type of activity are minimized.

The objective of the Clean Water Act is to "restore" the "biological integrity of the Nation's waters." 33 U.S.C. § 1251(a), App. 103a. Used correctly, restoration is as capable as hardware of achieving this objective, and in some cases better. See *supra* at 10. Thus, EPA properly interpreted the ambiguity in § 316(b) to maximize attainment of the statute's objectives.

This is exactly what EPA and the United States Army Corps of Engineers ("Corps") have done when faced with almost identical statutory instructions in § 404 of the Clean Water Act. For example, § 404(e)(1) allows the Corps to issue general permits for discharges of dredged and fill material where the Corps determines that the "activities ... will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment." 33 U.S.C. § 1344(e)(1), App. 123a-124a. Both agencies and courts have interpreted this to allow a permit applicant to mitigate the impact of its activities using restoration, enhancement, or creation of wetlands

offsite or onsite, so as to ensure minimal adverse impacts. 67 Fed. Reg. 2020/1, 2092-93 (Jan. 15, 2002); *Sierra Club v. U.S. Army Corps of Eng'rs*, 464 F. Supp. 2d 1171, 1211 (M.D. Fla. 2006) (citing *Ohio Valley Envtl. Coalition v. Bulen*, 429 F.3d 493, 502 (4th Cir. 2005); 40 C.F.R. § 230.75(d) (2005), App. 141a (habitat development and restoration techniques can be used to minimize adverse impacts and compensate for destroyed habitat); *see also* 33 C.F.R. § 325.4(a)(3), App. 125a, and § 320.4(r)(1), App. 124a.

In short, the court's determination that § 316(b) forbids restoration is not supported by the statutory language, is incompatible with other circuit interpretations of § 316(b) and analogous statutory provisions, and undermines EPA's ability to ensure that the statutory mandate is achieved.

III. Practical Implications for the Nation

For approximately thirty years, EPA and state permitting authorities have used cost-benefit analysis to make permitting decisions under § 316(b). In reliance on those decisions, existing facilities have invested billions of dollars in compliance measures. The Phase II rule reflects nearly a decade of study by EPA; significant input by environmental groups, states, and industry; and a painstaking effort to craft comprehensive nationwide standards consistent with EPA's longstanding interpretation.

The Second Circuit decision sets that effort back by years. It also threatens to impose billions of dollars of retrofit costs on the power industry,

consumers, and the economy, with little benefit. Although UWAG does not believe that retrofitting closed-cycle cooling can be justified even after *Riverkeeper II*, if retrofitting should be required, the costs and energy impacts would be enormous. Retrofitting would saddle the economy with billions of dollars in costs, lose significant electric generating capacity, and increase greenhouse gas emissions.

A study submitted by UWAG, for example, estimated that the nationwide cost of retrofitting would be $40 billion, about 18 percent of the industry's revenues. Other consultants estimated $44 to $66 billion. *See* UWAG Comments on Proposed § 316(b) Rule for Existing Facilities, Comment 1.41, Aug. 7, 2002. EPA, which admits that its estimates of costs may be too low, cited a nuclear plant in Michigan where retrofitting cost $18.8 million in 1973-74 dollars plus $683,000 in abandoned equipment. Consumers Responses to EPA Questions Regarding the Conversion of Palisades Nuclear Plant from A Once-Through Cooling System to A Cooling Tower System, DCN 4-2529, p. 7.

And this was just one plant. Many facilities, especially those with short remaining lives, may be forced to shut down or cancel planned repowering rather than incur the costs of cooling tower retrofits or other measures required by the Second Circuit's severely limiting decision. Other facilities may be physically unable to install cooling towers or other measures required by the decision. Much of the cost would be passed on to consumers of electricity, who already face rate increases from rising fuel costs.

These are not the only costs. Retrofitting existing plants with closed-cycle cooling extracts a significant energy penalty, which EPA estimated as 2.4 to 4.0 percent. 69 Fed. Reg. 41,605/2. The North American Electric Reliability Corporation ("NERC"), in its *2007 Long-Term Reliability Assessment* (page 97), uses Department of Energy estimates to warn that retrofitting cooling towers could reduce available capacity margin by 12 percent. See http://www.nerc.com/~filez/rasreports.html.

The plants that may be forced to shut down and the energy penalties imposed by retrofitting raise serious concerns about electric system reliability. The nation's electric system depends on a balanced array of generation and transmission facilities to provide a reliable supply of electricity. Already, according to the NERC study cited above, large areas of the United States are operating with thin generation and transmission capacity margins. In the study (page 10) NERC observes that "projected increases in peak demands continue to exceed projected committed resources beyond the first few years of the ten-year planning horizon." NERC also notes (page 10) that "[a]reas of the most concern include [the Western Electricity Coordinating Council]-Canada, California, Rocky Mountain States, New England, Texas, Southwest and the Midwest." The Second Circuit's decision threatens to exacerbate this problem by forcing generating plants to close or curtail operations.

To minimize or compensate for those penalties, power producers must burn more fuel, creating additional air emissions, 69 Fed. Reg. 41,605/3, as well as other impacts of extracting,

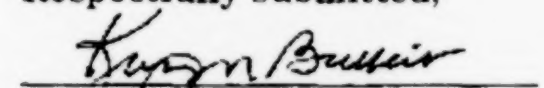
transporting, and burning fuel. Closed-cycle cooling also increases evaporative water losses, concentrates pollutants in intake water, and creates noise, drift, fogging, and other adverse environmental effects. *Id.* at 41,606/1. The Second Circuit decision does not suggest that these environmental impacts are irrelevant under § 316(b). Indeed, it acknowledges EPA's right to consider them. App. 30a n.11, 31a n.12. Yet its decision in *Riverkeeper II* robs EPA of an important tool – cost-benefit analysis – that the Agency often uses to evaluate disparate types of costs and benefits using a "common currency."

The resulting energy, economic, and environmental harms will not, in many cases, be offset by appreciable environmental benefit to aquatic life. EPA's comprehensive nationwide standards control impingement and entrainment without disregarding other critical values. This Court should not allow the court below to set EPA's judgment aside.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,



KRISTY A. N. BULLEIT
Counsel of Record
HUNTON & WILLIAMS LLP
1900 K STREET, N.W.
WASHINGTON, DC 20006-1109
(202) 955-1547

Counsel for Petitioner

NOVEMBER 2, 2007

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[ENTERED: JANUARY 25, 2007]

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

August Term, 2005

(Argued: June 8, 2006 Decided: January 25, 2007)

Docket Nos. 04-6692-ag(L), 04-6693-ag(CON), 04-6694-ag(CON), 04-6695-ag(CON), 04-6696-ag(CON), 04-6697-ag(CON), 04-6698-ag(CON), 04-6699-ag(CON)

RIVERKEEPER, INC., NATURAL RESOURCES DEFENSE COUNCIL, WATERKEEPER ALLIANCE, SOUNDKEEPER, INC., SCENIC HUDSON, INC., SAVE THE BAY-PEOPLE FOR NARRAGANSETT BAY, FRIENDS OF CASCO BAY, AMERICAN LITTORAL SOCIETY, DELAWARE RIVERKEEPER NETWORK, HACKENSACK RIVERKEEPER, INC., NEW YORK/NEW JERSEY BAYKEEPER, SANTA MONICA BAYKEEPER, SAN DIEGO BAYKEEPER, CALIFORNIA COASTKEEPER, COLUMBIA RIVERKEEPER, CONSERVATION LAW FOUNDATION, SURFRIDER FOUNDATION, STATE OF RHODE ISLAND, STATE OF CONNECTICUT, STATE OF DELAWARE, COMMONWEALTH OF MASSACHUSETTS, STATE OF NEW JERSEY, STATE OF NEW YORK, APPALACHIAN POWER COMPANY, ILLINOIS ENERGY ASSOCIATION, UTILITY WATER ACT

GROUP, PSEG FOSSIL LLC, PSEG NUCLEAR LLC, ENTERGY CORPORATION,

Petitioners,

– v. –

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, STEPHEN L. JOHNSON, in his official capacity as ADMINISTRATOR OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

Before: STRAUB, SOTOMAYOR, and HALL, *Circuit Judges*.

Petitioners challenge a final rule promulgated by the Environmental Protection Agency pursuant to section 316(b) of the Clean Water Act, 33 U.S.C. § 1326(b), that is intended to protect aquatic organisms from being harmed or killed by cooling water intake structures at large, existing power-producing facilities. While we conclude that certain aspects of the rule are based on a reasonable interpretation of the Clean Water Act and supported by substantial evidence in the administrative record, several aspects of the rule are not consistent with the statute, are not supported by sufficient evidence, or were not properly subject to notice and comment. We therefore grant in part and deny in part the petitions for review and dismiss in part one aspect of

the petitions for lack of jurisdiction because there is no final agency action to review.

REED W. SUPER, Morningside Heights Legal Services, Inc., Environmental Law Clinic, Columbia University School of Law (Michelle Avallone, Julia Errea, Vivian Mills, Ian Dattner, Monique Mendez, Misti Duvall, Devon Knowles, Molly McOwan, Adam Orford, Scott Sneddon, *on the brief*; P. Kent Correll, *of counsel*), New York, New York, for *Petitioners Riverkeeper, Inc., Natural Resources Defense Council, Waterkeeper Alliance, Soundkeeper, Inc., Scenic Hudson, Inc., Save the Bay–People for Narragansett Bay, Friends of Casco Bay, American Littoral Society, Delaware Riverkeeper Network, Hackensack Riverkeeper, Inc., New York/New Jersey Baykeeper, Santa Monica Baykeeper, San Diego Baykeeper, California Coastkeeper, Columbia Riverkeeper, Conservation Law Foundation*, and *Surfrider Foundation*.

TRICIA K. JEDELE, Special Assistant Attorney General of Rhode Island, Providence, Rhode Island (Patrick C. Lynch, Attorney General of Rhode Island; Michael Rubin, Special Assistant Attorney General, Providence, Rhode Island; Richard Blumenthal, Attorney General of Connecticut, Kimberly Massicotte and Matthew Levine, Assistant Attorneys General, Hartford, Connecticut; Carl C. Danberg, Attorney General of Delaware, Kevin Maloney, Deputy Attorney General, Wilmington, Delaware;

Thomas F. Reilly, Attorney General of Massachusetts, Andrew Goldberg, Assistant Attorney General, Boston, Massachusetts; Zulima V. Farber, Attorney General of New Jersey, Ellen Barney Balint, Deputy Attorney General, Trenton, New Jersey; Eliot Spitzer, Attorney General of New York, Maureen F. Leary, Assistant Attorney General, Albany, New York, *on the brief*), for *State Petitioners Rhode Island, Connecticut, Delaware, Massachusetts, New Jersey*, and *New York*.

KRISTY A.N. BULLEIT, Hunton & Williams, Washington, D.C. (James N. Christman, Elizabeth E. Aldridge, Hunton & Williams, Richmond, Virginia, *on the brief*), for *Petitioners Appalachian Power Company, Illinois Energy Association*, and *Utility Water Act Group*. KARL S. LYTZ, Latham & Watkins LLP, San Francisco, California (Christopher J. McAuliffe, PSEG Services Corporation, Newark, New Jersey; David J. Hayes, Cassandra Sturkie, Latham & Watkins LLP, Washington, D.C., *on the brief*), for *Petitioners PSEG Fossil LLC* and *PSEG Nuclear LLC*.

CHUCK D. BARLOW, Entergy Services, Inc., Jackson, Mississippi and ELISE N. ZOLI, Goodwin Procter LLP, Boston, Massachusetts (Robert H. Fitzgerald, U. Gwyn Williams, Goodwin Procter LLP, Boston, Massachusetts, *on the brief*), for *Petitioner Entergy Corp.*

DAVID S. GUALTIERI, CYNTHIA J. MORRIS, and JESSICA O'DONNELL, United States Department of Justice (Sue Ellen Woolridge, Assistant Attorney General, John C. Cruden, Deputy Assistant Attorney General, *on the brief*; Leslie J. Darman, United States Environmental Protection Agency, *of counsel*), Washington, D.C., for *Respondents*.

Lisa Madigan, Attorney General of Illinois, Matthew Dunn, Chief, Environmental Enforcement/ Asbestos Litigation Division, Ann Alexander, Environmental Counsel and Assistant Attorney General, Chicago, Illinois, for *Amicus Curiae State of Illinois*.

Jon Bruning, Attorney General of Nebraska, Lincoln, Nebraska (David D. Cookson, Special Counsel to the Attorney General, Lincoln, Nebraska; Troy King, Attorney General of Alabama, Montgomery, Alabama; Gregory D. Stumbo, Office of the Attorney General of the Commonwealth of Kentucky, Frankfort, Kentucky; Wayne Stenehjem, Attorney General of North Dakota, Bismarck, North Dakota; Paul G. Summers, Attorney General of Tennessee, Nashville, Tennessee; Steve Carter, Office of the Indiana Attorney General, Indianapolis, Indiana, *on the brief*), for *State Amici Curiae Nebraska, Alabama, Kentucky, North Dakota, Tennessee*, and *Indiana*.

Nancy Elizabeth Olinger, Assistant Attorney General (Greg Abbott, Attorney General of Texas, Barry R. McBee, First Assistant Attorney General, Edward D. Burbach, Deputy Attorney General for Litigation, Karen W. Kornell, Chief, Natural Resources Division, *on the brief*), Austin, Texas, for *Amicus Curiae Texas Commission on Environmental Quality*.

Russell S. Frye, FryeLaw PLLC, Washington, D.C., for *Amicus Curiae American Petroleum Institute*.

Jonathan F. Lewis, Clean Air Task Force, Boston, Massachusetts, for *Amici Curiae Healthlink, Kentucky Resources Council, New England Clean Water Action, The Ohio Environmental Council*, and *Ohio Valley Environmental Council*.

Lisa Heinzerling, Georgetown University Law Center, Washington, D.C., for *Amicus Curiae OMB Watch*.

SOTOMAYOR, *Circuit Judge*:

This is a case about fish and other aquatic organisms. Power plants and other industrial operations withdraw billions of gallons of water from the nation's waterways each day to cool their facilities. The flow of water into these plants traps (or "impinges") large aquatic organisms against grills or screens, which cover the intake structures, and draws (or "entrains") small aquatic organisms

into the cooling mechanism; the resulting impingement and entrainment from these operations kill or injure billions of aquatic organisms every year. Petitioners here challenge a rule promulgated by the Environmental Protection Agency ("the EPA" or "the Agency") pursuant to section 316(b) of the Clean Water Act ("CWA" or "the Act"), 33 U.S.C. § 1326(b),[1] that is intended to protect fish, shellfish, and other aquatic organisms from being harmed or killed by regulating "cooling water intake structures" at large, existing power-producing facilities.

For the reasons that follow, we grant in part and deny in part the petitions for review, concluding that certain aspects of the EPA's rule are based on a reasonable interpretation of the Act and supported by substantial evidence in the administrative record, but remanding several aspects of the rule because they are inadequately explained or inconsistent with the statute, or because the EPA failed to give adequate notice of its rulemaking. We also dismiss for lack of jurisdiction one aspect of the petitions because there is no final agency action to review.

BACKGROUND

Our decision in *Riverkeeper, Inc. v. EPA*, 358 F.3d 174 (2d. Cir. 2004) ("*Riverkeeper I*"), which addressed challenges to the EPA's rule governing cooling water intake structures at new – as opposed to existing – facilities discusses at length the

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[1] We refer to statutory provisions mentioned in the text by their section in the CWA and provide in citations both the section of the Act and the parallel section of the United States Code.

procedural and factual background of the rulemaking pursuant to section 316(b). We presume familiarity with *Riverkeeper I* and provide here only a brief overview of the statute and the various stages of the rulemaking.

These consolidated petitions for review concern a final rule promulgated by the EPA regarding the water that large, existing power plants withdraw from rivers, lakes, and other waterways of the United States to cool their facilities. *See* 40 C.F.R. § 125.91(a). This cooling process requires power plants to extract billions of gallons of water per day from the nation's waters, thereby impinging and entraining a huge number of aquatic organisms. *Riverkeeper I*, 358 F.3d at 181. Indeed, a single power plant can kill or injure billions of aquatic organisms in a single year. *Id.*

Cognizant of this problem, Congress in 1972 amended the CWA, 33 U.S.C. §§ 1251-1387, to regulate cooling water intake structures. *See* Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816 (1972). We have described Congress's regulation of such structures as "something of an afterthought," *Riverkeeper I*, 358 F.3d at 186 n.12, given that the directive appears in a section of the Act addressing the seemingly unrelated issue of thermal pollution, *see* CWA § 316(a), 33 U.S.C. § 1326(a). The Act, as amended, provides that "[a]ny standard established pursuant to section 1311 of this title [CWA section 301] or section 1316 of this title [CWA section 306] and applicable to a point source shall require that the location, design, construction, and capacity of cooling

water intake structures reflect the best technology available for minimizing adverse environmental impact." CWA § 316(b), 33 U.S.C. § 1326(b).

The provisions of the Act cross-referenced in section 316(b) direct the EPA to issue rules regulating the discharge of pollution from existing point sources, CWA § 301, 33 U.S.C. § 1311, and new point sources, CWA § 306, 33 U.S.C. § 1316.[2] As we noted in *Riverkeeper I*, "[w]hen the EPA established new source performance discharge standard[s] . . . it ought *then* to have regulated . . . intake structures . . . ." 358 F.3d at 185 (internal quotation marks omitted; emphasis in original). Put differently, section 316(b) required the EPA to promulgate regulations for cooling water intake structures at the same time that it established pollution discharge standards pursuant to sections 301 and 306. The EPA's first attempt at regulation under section 316(b), however, was remanded by the Fourth Circuit in 1977 on procedural grounds, and years passed without the EPA issuing new rules. *Id.* at 181 (citing *Appalachian Power Co. v. Train*, 566 F.2d 451 (4th Cir. 1977)). Environmental groups ultimately sued the EPA and won a consent decree, pursuant to which the Agency established a timetable to issue rules pursuant to Section 316(b) in three "phases." *Id.* & n.3. Phase I – addressed in *Riverkeeper I* – governs new facilities; Phase II – addressed here – covers large, existing power plants; and Phase III will regulate existing power plants not

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[2] A "point source" is "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged." 33 U.S.C. § 1362(14).

governed by Phase II, as well as other industrial facilities. *See Riverkeeper, Inc. v. Whitman*, No. 93 Civ. 0314 (AGS), 2001 WL 1505497, at *1 n.3 (S.D.N.Y. Nov. 27, 2001).

Our interpretation of section 316(b) is informed by the two provisions it cross-references, CWA sections 301 and 306. Section 301 sets forth a framework under which limitations on the discharge of pollutants from existing sources would become more stringent over time. CWA § 301(b), 33 U.S.C. § 1311(b); *see Riverkeeper I*, 358 F.3d at 185. Section 301(b)(1)(A) required the EPA, beginning in 1977, to set effluent limitations for existing sources based on "the best practicable control technology currently available," or "BPT." CWA § 301(b)(1)(A), 33 U.S.C. § 1311(b)(1)(A). By 1989, existing source effluent limitations were to be based on the more stringent "best available technology economically achievable," or "BAT." CWA § 301(b)(2)(A), 33 U.S.C. § 1311(b)(2)(A). Additionally, section 306 requires the EPA to establish "standards of performance" for the control of the discharge of pollutants from new sources based on "the best available demonstrated control technology," a standard that "reflects the greatest degree of effluent reduction." CWA § 306(a)(1), 33 U.S.C. § 1316(a)(1).

In section 316(b), Congress established yet another standard to govern cooling water intake structures, which requires such structures to reflect the "best technology available for minimizing adverse environmental impact," or "BTA." CWA § 316(b), 33 U.S.C. § 1326(b). We noted in *Riverkeeper I* that "[a]lthough the EPA is permitted

to consider a technology's cost in determining whether it is 'practicable,' 'economically achievable,' or 'available,' it should give decreasing weight to expense as facilities have time to plan ahead to meet tougher restrictions." 358 F.3d at 185 (citations omitted). Additionally, we observed that "[b]ecause section 316(b) refers to sections 301 and 306 but provides a different standard ('best technology available for minimizing adverse environmental impact' instead of, for example, 'best available demonstrated control technology') and does not explicitly provide that regulations pursuant to section 316(b) are subject to the requirements of sections 301 and 306, we think it is permissible for the EPA to look to those sections for guidance but to decide that not every statutory directive contained therein is applicable" to rulemaking under section 316(b). *Id.* at 187. With this general background in mind, we consider Phases I and II of the EPA's rulemaking.

I. The Phase I Rule

On December 18, 2001, the EPA issued its first rule ("the Phase I Rule") governing cooling water intake structures for new – as opposed to existing – facilities. *Regulations Addressing Cooling Water Intake Structures for New Facilities; Final Rule*, 66 Fed. Reg. 65,256 (Dec. 18, 2001) (codified at 40 C.F.R. pts. 9, 122-25). The Phase I Rule established a two-track approach to regulating cooling water intake systems at new facilities, under which a new facility could choose one of two "tracks" to comply with the statute. Track I created national intake capacity and velocity standards based on

closed-cycle cooling technology,[3] which the EPA deemed the best technology available for minimizing adverse environmental impacts. *See Riverkeeper I*, 358 F.3d at 182-83. Track II did not require the use of any specific technology so long as the facility "can show, in a demonstration study, 'that the technologies employed will reduce the level of adverse environmental impact . . . to a comparable level to that which' would be achieved applying Track I's capacity and velocity requirements." *Id.* at 183 (quoting 40 C.F.R. § 125.84(d)(1)).

Environmental and industry groups challenged certain aspects of the rule, including, *inter alia*, the part of the Track II procedure allowing power plants to comply with section 316(b) by undertaking so-called "restoration measures," such as restocking the waterbody with fish, reclaiming abandoned mines to reduce drain-off, or removing barriers to fish migration, to maintain fish and shellfish in a waterbody at certain levels. In

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[3] As we noted in *Riverkeeper I*,

> Cooling water systems fall into three groups. "Once-through" systems take water in, use it to absorb heat, and return the water to its source at a higher temperature. "Closed-cycle" systems recirculate the water (after allowing it to cool off in a reservoir or tower before being reused) and add water to the system only to replace that which is lost through evaporation. Closed-cycle systems, therefore, withdraw far less water than once-through systems. Dry cooling systems . . . use air drafts to transfer heat, and, as their name implies, they use little or no water.

358 F.3d at 182 n.5 (internal citations omitted).

Riverkeeper I, we upheld most aspects of the Phase I Rule, but remanded the provisions relating to the Track II restoration option. We found that the restoration option was inconsistent with section 316(b)'s requirement that the EPA minimize adverse environmental impacts by regulating the "'location, design, construction, and capacity of cooling water intake structures'" because this option has nothing to do with the location, design, construction, or capacity of such structures. *Id.* at 189 (quoting CWA § 316(b), 33 U.S.C. § 1326(b)). Given this, we held that the EPA had impermissibly exceeded its authority in allowing Phase I facilities to use these restoration measures to comply with regulations implementing the statute. *Id.*

II. The Phase II Rule

On July 9, 2004, the EPA issued a final rule, pursuant to the second phase of the consent decree ("the Phase II Rule" or "the Rule"), that governs cooling water intake structures at large, existing power plants. *See Final Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities*, 69 Fed. Reg. 41,576 (July 9, 2004) (codified at 40 C.F.R. pts. 9, 122-125). The Phase II Rule covers existing facilities that are "point sources" and that, as their primary activity, "both generate[ ] and transmit[ ] electric power, or generate[ ] electric power but sell[] it to another entity for transmission," "use[] or propose[] to use cooling water intake structures with a total design intake flow of 50 million gallons per day (MGD) or more," and "use[] at least 25 percent of water withdrawn exclusively for cooling purposes." 40

C.F.R. § 125.91. Although we will discuss the specifics of the Rule with respect to each challenge, we provide here an overview of the Rule.

The Phase II Rule sets forth five compliance alternatives. *See* 40 C.F.R. § 125.94(a). Section 125.94(a) requires that a facility select and implement one of the following "for establishing best technology available for minimizing adverse environmental impact":

> (1)(i) You may demonstrate to the Director that you have reduced, or will reduce, your flow commensurate with a closed-cycle recirculating system. In this case, you are deemed to have met the applicable performance standards and will not be required to demonstrate further that your facility meets the impingement mortality and entrainment performance standards specified in paragraph (b) of this section. . . .; or
>
> (ii) You may demonstrate to the Director that you have reduced, or will reduce, your maximum through-screen design intake velocity to 0.5 ft/s or less. In this case, you are deemed to have met the impingement mortality performance standards and will not be required to demonstrate further that your facility meets the performance standards for impingement mortality specified in paragraph (b) of this section and you are not subject to the requirements in §§ 125.95, 125.96, 125.97, or 125.98 as they apply to impingement mortality. However, you are still subject to

any applicable requirements for entrainment reduction . . . .[;]

(2) You may demonstrate to the Director that your existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section[;]

(3) You may demonstrate to the Director that you have selected, and will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section;

(4) You may demonstrate to the Director that you have installed, or will install, and properly operate and maintain an approved design and construction technology in accordance with § 125.99(a) or (b); or

(5) You may demonstrate to the Director that you have selected, installed, and are properly operating and maintaining, or will install and properly operate and maintain design and construction technologies, operational

> measures, and/or restoration measures that the Director has determined to be the best technology available to minimize adverse environmental impact for your facility in accordance with paragraphs (a)(5)(i) or (ii) of this section. . . .

40 C.F.R. § 125.94(a).

The Phase II Rule does not require large, existing power plants to install closed-cycle cooling systems, although a facility with such a system (or one whose intake flow is commensurate with that of a closed-cycle system) will be considered in compliance with the Rule. 40 C.F.R. § 125.94(a)(1)(i). The Rule instead references national performance standards, discussed below, that "are based on consideration of a range of technologies that EPA has determined to be commercially available for the industries affected as a whole." 69 Fed. Reg. at 41,598-99. And rather than limiting BTA to technologies based on closed-cycle cooling systems, the EPA designated a "suite" of technologies – including fine- and wide-mesh wedgewire screens, aquatic filter barrier systems, barrier nets, and fish return systems, among others, *id.* at 41,599; *see also* 40 C.F.R. § 125.99(a) – as BTA for large, existing power plants.

Section 125.94(b) establishes national performance standards to be achieved through one of the compliance alternatives set forth in section 125.94(a). With respect to impingement mortality, it provides that facilities choosing "compliance alternatives in paragraphs (a)(2), (a)(3), or (a)(4) of

this section . . . must reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline."[4] *Id.* § 125.94(b)(1). With respect to entrainment, facilities that choose

> compliance alternatives in paragraphs (a)(1)(ii), (a)(2), (a)(3), or (a)(4) of this section . . . must also reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline if:
>
> > (i) [the] facility has a capacity utilization rate of 15 percent or greater, and
> >
> > (ii)(A) . . . uses cooling water withdrawn from a tidal river, estuary, ocean, or one of the Great Lakes; or (B) . . . uses cooling water withdrawn from a freshwater river or stream and the design intake flow of your cooling water intake structures is greater than five percent of the mean annual flow.

Id. § 125.94(b)(2).

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[4] The "calculation baseline" is "an estimate of impingement mortality and entrainment that would occur" at a specific site based on a number of quantitative assumptions regarding intake velocity and the location and design of the site's intake structures. 40 C.F.R. § 125.93. The regulation also permits a site's specific historical and current data on impingement and entrainment to serve as a basis for this baseline. *Id.*

Section 125.94(c) permits facilities to comply with the Rule by implementing restoration measures "in place of or as a supplement to installing design and control technologies and/or adopting operational measures that reduce impingement mortality and entrainment." *Id.* § 125.94(c). In order to adopt restoration measures under the Rule, a facility must demonstrate that "meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective, or less environmentally desirable than meeting the standards . . . through the use of restoration measures." *Id.* § 125.94(c)(1). Moreover, the restoration measures implemented by the facility must produce ecological benefits "at a level that is substantially similar" to what would be achieved by meeting the national performance standards of section 125.94(b). *Id.* § 125.94(c)(2).

The compliance provision of section 125.94(a)(5) permits what is in effect a site-specific compliance alternative to the generally applicable performance standards in two circumstances. In the first circumstance ("the cost-cost compliance alternative" or "the cost-cost variance"), if a facility demonstrates that its compliance costs "would be significantly greater than the costs considered by the Administrator," the permitting authority must make a site-specific determination of BTA that is "as close as practicable to the applicable performance standards . . . without resulting in costs that are significantly greater than the costs considered by the Administrator" in establishing those standards. 40

C.F.R. § 125.94(a)(5)(i). In the second circumstance ("the cost-benefit compliance alternative" or "the cost-benefit variance"), the permitting authority must make a site-specific determination of BTA that is "as close as practicable" to the national performance standards if a facility demonstrates that its compliance costs would be "significantly greater than the benefits of complying" with the performance standards at the facility. *Id.* § 125.94(a)(5)(ii).

For those facilities installing technologies designated as BTA, section 125.94(d) allows the national performance standards set forth in section 125.94(b) to be satisfied by demonstrating compliance with a technology installation and operation plan ("TIOP"), which concerns, *inter alia*, a facility's installation, operation and maintenance of BTA. As the Rule is enforced through the permitting process under the National Pollutant Discharge Elimination System ("NPDES"),[5] section 125.94(d)(1) provides that a facility that uses one of the compliance methods other than closed-cycle cooling may request that compliance with the national performance standards during the first permit cycle be determined with respect to whether the facility has complied with the TIOP it submitted with its permit application. Section 125.94(d)(2) authorizes facilities to request that compliance during subsequent permit terms be determined based on whether a facility remains in compliance with its TIOP, and in accordance with any necessary

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[5] The NPDES process is promulgated under CWA section 402(a)(1), 33 U.S.C. § 1342(a)(1).

revisions, "if applicable performance standards are not being met." 40 C.F.R. § 125.94(d)(2).

Finally, section 125.94(f) applies solely to nuclear power facilities. It provides that if a nuclear facility's compliance with the Rule would conflict with a safety requirement established by the Nuclear Regulatory Commission, the EPA must make a site-specific determination of BTA that would not conflict with the Commission's safety requirement. 40 C.F.R. § 125.94(f).

For purposes of judicial review, the Phase II Rule was promulgated on July 23, 2004. *See* 69 Fed. Reg. at 41,576. Three sets of petitioners, discussed below, brought timely challenges to the Rule.[6]

DISCUSSION

I. Standard of Review

We have jurisdiction to review this Rule pursuant to CWA section 509(b)(1), 33 U.S.C. § 1369(b)(1). *See Riverkeeper I*, 358 F.3d at 183 (stating that the Phase I Rule is covered by the jurisdictional grant of § 1369(b)(1)). As we explained in *Riverkeeper I*, our substantive review is twofold. "First, we examine the regulation against the statute that contains the EPA's charge." *Id.* at 184. If

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[6] The parties filed petitions for review here as well as in several of our sister circuits. The petitions were consolidated in the Ninth Circuit by order of the judicial panel on multi-district litigation pursuant to 28 U.S.C. §§ 1407 and 2112(a)(3). The Ninth Circuit thereafter transferred the case here pursuant to 28 U.S.C. § 2112(a)(5).

Congress "has directly spoken to the precise question at issue" and its intent is clear, we "must give effect to the unambiguously expressed intent of Congress." *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842-43 (1984). If, however, the statute is silent or ambiguous, we ask whether "the agency's answer is based on a permissible construction of the statute." *Id.* at 843.

Second, if the agency has followed Congress's unambiguously expressed intent or permissibly construed an ambiguous statute, "we measure the regulation against the record developed during the rulemaking, but we 'hold unlawful' the agency's regulation only if it is 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Riverkeeper I*, 358 F.3d at 184 (quoting 5 U.S.C. § 706(2)(A)). "Normally, we must deem arbitrary and capricious an agency rule where 'the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.'" *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 498 (2d Cir. 2005) (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (internal quotation marks and citations omitted)).

Finally, our review has a procedural dimension. The Administrative Procedure Act ("APA") requires that notice of proposed rulemaking be published in the Federal Register, 5 U.S.C.

§ 553(b)(3), and that interested parties be allowed an opportunity to comment on proposed rules, *id.* § 553(c). Where an agency fails to comply with the APA's notice and comment provisions, we remand to the agency for further proceedings. *See Sprint Corp. v. FCC*, 315 F.3d 369, 371 (D.C. Cir. 2003) ("Because the [agency] failed to provide adequate notice and opportunity to comment, we grant the petition and remand the case to the [agency].").

II. The Petitions for Review

The state petitioners[7] and the self-styled environmental petitioners[8] challenge the Rule on similar grounds. Their petitions contain the following arguments: (1) the EPA exceeded its authority in rejecting closed-cycle cooling as BTA for existing facilities generally, and the Agency's rejection of closed-cycle cooling as BTA for facilities on sensitive waterbodies is not entitled to deference because the decision was made at the direction of the Office of Management and Budget ("OMB"); (2) the EPA exceeded its authority by establishing ranges of acceptable performance rather than a single-numeric performance standard; (3) the CWA does not allow

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[7] Rhode Island, Connecticut, Delaware, Massachusetts, New Jersey, and New York.

[8] Riverkeeper, Inc., Natural Resources Defense Council, Waterkeeper Alliance, Soundkeeper, Inc., Scenic Hudson, Inc., Save the Bay–People for Narragansett Bay, Friends of Casco Bay, American Littoral Society, Delaware Riverkeeper Network, Hackensack Riverkeeper, Inc., New York/New Jersey Baykeeper, Santa Monica Baykeeper, San Diego Baykeeper, California Coastkeeper, Columbia Riverkeeper, Conservation Law Foundation, and Surfrider Foundation.

restoration measures as a means of compliance; (4) the EPA failed to give adequate notice that it would allow site-specific determinations of BTA based on cost-cost analysis, and the EPA impermissibly construed the statute to allow site-specific determinations of BTA based on cost-benefit analysis; (5) the provision allowing that compliance with the performance standards be determined by establishing compliance with a facility's TIOP is unauthorized and violates the rulemaking requirement of notice and comment; and (6) the Agency has classified certain new constructions as "existing facilities" contrary to the definitions set forth in the Phase I Rule without providing adequate notice and opportunity for comment.

Three groups of industry petitioners, which we will refer to collectively as the "industry petitioners" or individually as Entergy Corporation ("Entergy"), the Utility Water Act Group ("UWAG"),[9] and PSEG Fossil LLC and PSEG Nuclear LLC ("PSEG"), advance various challenges to the Phase II Rule. Their challenges raise the following arguments: (1) section 316(b) of the CWA does not apply to existing facilities; (2) the Agency's definition of "adverse environmental impact" is insufficiently supported by the record; (3) the EPA's assumption of zero entrainment survival is insufficiently supported by the record; (4) the EPA improperly requires evaluation of qualitative non-use benefits in site-specific cost-benefit analyses; (5) the Agency failed to

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[9] UWAG petitions this court in conjunction with the Appalachian Power Company and the Illinois Energy Association.

account for the Rule's disproportionate impact on nuclear facilities; (6) the EPA gave inadequate notice of the independent-supplier provision; and (7) the Agency provided no notice of its post-rulemaking definition of "Great Lakes." The industry petitioners also seek to preserve the right on this petition for review to raise new challenges to the Rule if we remand significant aspects of it. We consider first the challenges raised by the state and environmental petitioners and then will turn to the industry petitioners' challenges.

III. The State and Environmental Petitioners

A. Determination of BTA

Perhaps the most significant challenge to the Phase II Rule is the petitioners' contention that the EPA exceeded its authority in rejecting closed-cycle cooling, and selecting instead the suite of technologies, as the "best technology available" as required by section 316(b), 33 U.S.C. § 1326(b), in large part because the Agency engaged in improper cost considerations. This challenge requires us at the outset to determine to what extent, if any, the EPA can consider cost when selecting "the best technology available for minimizing adverse environmental impact" under the statute.

1. Cost Analysis Pursuant to Sections 301 and 306

Section 316(b) does not itself set forth or cross-reference another statutory provision enumerating the specific factors that the EPA must consider in

determining BTA. The statute, however, does make specific reference to CWA sections 301 and 306, which we have taken previously as "an invitation" to look to those sections for guidance in "discerning what factors Congress intended the EPA to consider in determining" BTA. *Riverkeeper I*, 358 F.3d at 186. We look to each of these statutes in turn.

Section 301(b)(1)(A) established the BPT standard that governed the effluent limitations applicable to existing sources through 1989. Congress provided that, in determining BPT, the Agency could consider "the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application." CWA § 304(b)(1)(B), 33 U.S.C. § 1314(b)(1)(B). As noted above, however, the CWA created standards that were to become increasingly stringent over time, and in 1989, the more lenient BPT standard for existing sources was replaced by the BAT standard of section 301(b)(2)(A), in which Congress provided that the EPA could consider only "the cost of achieving such effluent reduction." CWA § 304(b)(2)(B), 33 U.S.C. § 1314(b)(2)(B). Notably omitted from the list of permissible factors to which the EPA could look in determining BAT was the cost of technology in relation to the benefits that technology could achieve.

This shift from BPT to BAT fundamentally altered the way in which the EPA could factor cost into its CWA determinations. Indeed, in analyzing BPT and BAT, the Supreme Court stated that in "assessing BAT[,] total cost is no longer to be considered in comparison to effluent reduction

benefits," as it had been in assessing BPT. *EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 71 (1980). The Court indicated that the less stringent BPT standard had allowed for a "limited cost-benefit analysis" intended to "'limit the application of technology only where the additional degree of effluent reduction is wholly out of proportion to the costs of achieving such marginal level of reduction.'" *Id.* at 71 n.10 (quoting Remarks of Senator Muskie reprinted in Legislative History of the Water Pollution Control Act Amendments of 1972 (Committee Print compiled for the Senate Committee on Public Works by the Library of Congress) Ser. No. 93-1, p. 170 (1973)). In determining BAT, by contrast, the EPA may consider cost as a factor to a limited degree, *see id.*, but only as to whether the cost of a given technology could be reasonably borne by the industry and not the relation between that technology's cost and the benefits it achieves, *Riverkeeper I*, 358 F.3d at 195.

Section 306, which governs the effluent limitations that apply to new sources, provides that a "standard of performance" established by the EPA must reflect the "best available demonstrated control technology." CWA § 306(a)(1), 33 U.S.C. § 1316(a)(1). In language identical to the text of § 304(b)(2)(B) governing BAT, Congress provided that in establishing standards of performance, the EPA "shall take into consideration the cost of achieving such effluent reduction," CWA § 306(b)(1)(B), 33 U.S.C. § 1316(b)(1)(B), but did not require the EPA to conduct cost-benefit analysis. *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 570 (D.C. Cir. 2002) ("[S]ection 306 requires that, when setting the [new source

performance standards], the Administrator must take costs into consideration, but does not require that she conduct a cost-benefit analysis."). Sections 301 and 306 of the CWA thus demonstrate that, after 1989, cost is a lesser, more ancillary consideration in determining what technology the EPA should require for compliance under those sections.

The shift from the BPT standard to the more stringent BAT one clearly signaled Congress's intent to move cost considerations under the CWA from a cost-benefit analysis to a cost-effectiveness one. We understand the difference between these two analyses to turn on the difference between means and ends. Cost-benefit analysis, like BPT, compares the costs and benefits of various ends, and chooses the end with the best net benefits. By contrast, cost-effectiveness considerations, like BAT, determine which means will be used to reach a specified level of benefit that has already been established.[10] Given the above and considering the parallel language of sections 304(b)(2)(B) and 306(b)(1)(B), the reasoning of *National Crushed Stone* strongly suggests that cost-benefit analysis is no longer permitted under those sections of the CWA.

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[10] *See, e.g.*, OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, Appendix A (1992) (defining "benefit-cost analysis" as "[a] systematic quantitative method of assessing the desirability of government projects or policies when it is important to take a long view of future effects and a broad view of possible side-effects" and "cost effectiveness" as "[a] systematic quantitative method for comparing the costs of alternative means of achieving the same stream of benefits or a given objective").

2. Cost Analysis Pursuant to Section 316(b)

As already noted, section 316(b) does not itself set forth the factors that the Agency can consider in determining the "best technology available for minimizing adverse environmental impact." The BTA standard of section 316(b), however, is linguistically similar to the BAT standard of section 301 and the standard that applies to new sources under section 306, and to the extent that cost-benefit analysis is precluded under those statutes, one might reasonably conclude that it is similarly not permitted under section 316(b). We conclude in any event that the language of section 316(b) itself plainly indicates that facilities must adopt the *best* technology available and that cost-benefit analysis cannot be justified in light of Congress's directive.

We stated in *Riverkeeper I* that the EPA can consider cost in establishing BTA, but only in a limited fashion and not as a primary consideration. Indeed, "[w]ith respect to costs, 'the Administrator must inquire into the initial and annual costs of applying the technology and make an affirmative determination that those costs can be *reasonably borne* by the industry.'" *Riverkeeper I*, 358 F.3d at 195 (quoting *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 262 (5th Cir. 1989)) (emphasis added). While the statutory language suggests that the EPA may consider costs in determining BTA, in that a technology that cannot not be reasonably borne by the industry is not "available" in any meaningful sense, cost-benefit analysis is not similarly supported by the language or purpose of the statute.

Section 316(b) expressly requires a technology-driven result, *cf. Natural Res. Def. Council, Inc. v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987) ("[T]he most salient characteristic of [the CWA's] statutory scheme, articulated time and again by its architects and embedded in the statutory language, is that it is technology-forcing."), not one driven by cost considerations or an assessment of the desirability of reducing adverse environmental impacts in light of the cost of doing so. A selection of BTA based on cost-benefit considerations is thus impermissibly cost-driven, but a selection based in part on cost-effectiveness considerations, while taking cost into account, remains technology-driven. The statute therefore precludes cost-benefit analysis because "Congress itself defined the basic relationship between costs and benefits." *Am. Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 509 (1981). Moreover, this conclusion is further supported by the fact that Congress in establishing BTA did not expressly permit the Agency to consider the relationship of a technology's cost to the level of reduction of adverse environmental impact it produces.[11] "When Congress

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[11] This conclusion accords with the analysis in *Riverkeeper I* that the EPA may consider cost in establishing BTA pursuant to section 316(b), but only in a limited way. In our discussion of the EPA's choice of closed-cycle, rather than dry, cooling as BTA for Phase I facilities, *see* 358 F.3d at 194-95, 194 n.22, we noted that "dry cooling costs more than ten times as much per year as closed-cycle wet cooling," but emphasized that "it is estimated to reduce water intake by only an additional 5 percent relative to once-through cooling." *Id.* at 194 (internal footnotes omitted). We acknowledged that dry cooling is both much more effective and much more expensive than closed-cycle cooling in absolute terms, but stressed that, as compared to the baseline of once-through cooling systems,

has intended that an agency engage in cost-benefit analysis, it has clearly indicated such intent on the face of the statute." *Id.* at 510.

Given the above, the EPA may permissibly consider cost in two ways: (1) to determine what technology can be "reasonably borne" by the industry and (2) to engage in cost-effectiveness analysis in determining BTA. Thus, the EPA must first determine what is the most effective technology that may reasonably be borne by the industry. In making this initial determination, the most effective technology must be based not on the average Phase II facility but on the optimally best performing Phase II facilities, *see, e.g.*, *Kennecott v. United States EPA*, 780 F.2d 445, 448 (4th Cir. 1985) ("In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible."), although, of course, the EPA must still ascertain whether the industry as a whole can reasonably bear the cost of the adoption of the technology, bearing in mind the aspirational and technology-forcing character of the CWA. This technology constitutes the benchmark for performance. Once this

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the marginal benefits of dry cooling were small: "it is undeniably relevant that that difference represents a relatively small improvement over closed-cycle cooling at a very significant cost." *Id.* at 194 n.22. In dicta, we characterized this mode of analysis as "relevant" and stated that it "adds a useful perspective," *id.*, but did not treat it as the fulcrum of our analysis. Ultimately, we deferred to the EPA's determination insofar as it was based on the grounds that dry cooling was too expensive for industry reasonably to bear and that dry cooling has negative environmental effects best left to the considered judgment of the Agency. *Id.* at 195-96.

determination has been made, the EPA may then consider other factors, including cost-effectiveness, to choose a less expensive technology that achieves essentially the same results as the benchmark.[12] For example, assuming the EPA has determined that power plants governed by the Phase II Rule can reasonably bear the price of technology that saves between 100 - 105 fish, the EPA, given a choice between a technology that costs $100 to save 99 - 101 fish and one that costs $150 to save 100 - 103 fish (with all other considerations, like energy production or efficiency, being equal), could appropriately choose the cheaper technology on cost-effectiveness grounds. Cost-benefit analysis, however, is not permitted under the statute because, as noted, Congress has already specified the relationship between cost and benefits in requiring that the

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[12] We note that the EPA is by no means required to engage in cost-effectiveness analysis. Indeed, to require the Agency to conduct cost-effectiveness analysis would transform such analysis into a primary factor in choosing BTA, which clearly is contrary to the technology-forcing principle that animates the CWA. Equally important, we note that the Agency may also depart from this performance benchmark because of other permissible considerations aside from cost, for instance, energy efficiency or environmental impact. *See Riverkeeper I*, 358 F.3d at 195-96 (noting "the EPA was permitted to consider . . . energy efficiency in determining the 'best technology available'" and could also factor in environmental impact). While the EPA has indicated throughout the record and its briefing before us that its determination of BTA here included such considerations as energy efficiency and production concerns, we nevertheless must remand, as we explain below, for further explanation from the Agency. Accordingly, we express no view on the merits of the EPA's determination regarding the other factors it claims influenced its decision.

technology designated by the EPA be the best available.[13] *Cf. Am. Textile Mfrs. Inst.*, 452 U.S. at 509-10. The Agency accordingly could not make the policy decision, in the face of Congress's determination that facilities use the best technology available, that an economically feasible level of reduction of impingement mortality and entrainment is not desirable in light of its cost. Indeed, in the example above, the EPA could not choose the cheaper technology on cost considerations under section 316(b) if the EPA had first determined that the power plants could reasonably bear the cost of technology that could save at least 102 fish.

We nevertheless acknowledge that the comparable technologies considered by the Agency need not be identically effective for the Agency to engage in cost-effectiveness analysis. Were that the case, all that would be required would be the simple determination of which among competing technologies that achieved the same degree of reduction of adverse environmental impacts is the cheapest. Instead, the specified level of benefit is more properly understood as a narrowly bounded range, within which the EPA may permissibly choose between two (or more) technologies that produce essentially the same benefits but have markedly different costs. With these considerations in mind, we turn to the Rule as promulgated.

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[13] For this reason, we reject Entergy's argument that the Rule is improper because its cost exceeds its benefits.

3. The Determination of BTA under the Phase II Rule

As noted previously, unlike the Phase I Rule, the Phase II Rule does not require facilities to reduce intake flow to a level commensurate with the intake of closed-cycle systems. Instead, the Rule requires facilities to meet the national performance standards associated with the suite of technologies the EPA identified as BTA. Petitioners' challenge here has two components. First, the state petitioners contend that closed-cycle cooling is the best technology available and that the EPA has exceeded its authority by promulgating a rule that does not require closed-cycle cooling, or the use of technologies producing a commensurate reduction of water usage for existing facilities in the same manner as the Phase I Rule required for new facilities.[14] Second, the environmental petitioners argue that the EPA improperly rejected closed-cycle cooling as BTA for the largest facilities on the most sensitive waterbodies at the direction of OMB because it sought to maximize net economic benefits rather than to minimize adverse environmental impact. They further argue that the BTA standard of section 316(b) requires a commitment of the maximum resources economically feasible to the goal of eliminating adverse environmental impacts and that the statute does not permit the EPA to select BTA on the basis of cost-benefit analysis.

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[14] While the state petitioners frame their argument as a challenge to the site-specific compliance alternatives, their brief presses the view that closed-cycle cooling is the best technology available and that the EPA exceeded its authority in failing to require Phase II facilities to adopt it.

For the reasons that follow, we conclude that the statute's "best technology available" standard permits cost-effectiveness considerations to influence the choice among technologies whose performance does not essentially differ from the performance of the best-performing technology whose cost the industry reasonably can bear, but that the statute does not permit the EPA to choose BTA on the basis of cost-benefit analysis. As we explain below, however, the record is unclear as to the basis for the EPA's selection of the suite of technologies as BTA, and we therefore remand for clarification of the basis for the Agency's decision and potentially for a reassessment of BTA.

The EPA stated in the Rule's preamble that the BTA standard should be interpreted as "best technology available commercially at an economically practicable cost," and explained that "an important component of economic practicability" is "the relationship of costs to environmental benefits." 69 Fed. Reg. at 41,604. The EPA further explained that this inquiry required that "there should be some reasonable relationship between the *cost* of cooling water intake structure control technology and the environmental *benefits* associated with its use." *Id.* (emphasis added).

The EPA took this "economically practicable" concept directly from the text of a floor speech of a single representative – the only specific reference to section 316(b) in the congressional debates. *See Riverkeeper I*, 358 F.3d at 186 n.12. We noted in *Riverkeeper I* that the "paucity" of legislative history "counsels against imputing much specific intent to

Congress beyond the section's words themselves." *Id.* Moreover, we find the EPA's interpretation of section 316(b) problematic because its construction significantly resembles the less stringent, and now obsolete, BPT standard of section 301(b)(1)(A). As noted earlier, in setting forth the factors for the EPA to consider in establishing BPT under section 301(b)(1)(A) and the more stringent BAT under section 301(b)(2)(A), Congress made only one distinction: while the Agency could consider the relationship between cost and benefits in establishing BPT, CWA § 304(b)(1)(B), 33 U.S.C. § 1314(b)(1)(B), it could consider cost insofar as it can be "reasonably borne" by the industry, but not the relationship between cost and benefits, in establishing BAT, CWA § 304(b)(2)(B), 33 U.S.C. § 1314(b)(2)(B). *Riverkeeper I*, 358 F.3d at 195.

This difference in how the EPA can consider cost under section 304(b) in establishing BPT and BAT is directly mirrored by the most significant textual distinction between sections 301(b)(1)(A) and 301(b)(2)(A) – the requirement that a technology be "practicable" under only the less stringent BPT standard. *Compare* CWA § 301(b)(1)(A), 33 U.S.C. § 1311(b)(1)(A) (BPT is the "best practicable control technology") *with* CWA § 301(b)(2)(A), 33 U.S.C. 1311(b)(2)(A) (BAT is the "best available technology"). The use of the word "practicable," therefore, when coupled with the permissible cost considerations under section 304, signals that Congress intended the EPA to strike a balance between cost and benefits in determining BPT. But the word "practicable" is missing from the more stringent BAT standard, under which Congress

prohibited the EPA from considering the relation of cost to benefits. This omission is thus significant. *See Russello v. United States*, 464 U.S. 16, 23 (1983) ("[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." (quotation marks and citation omitted; alteration in original)). Because Congress also omitted "practicable" from section 316(b), we are troubled by the Agency's interpretation of the statute to require "practicability" analysis here and its implicit corollary that the Agency can undertake a cost-benefit analysis in establishing BTA under section 316(b).

Our concern with the EPA's determination with section 316(b) is further deepened by the Agency's rejection of closed-cycle cooling and selection of a suite of technologies as the basis for BTA for existing facilities because the suite of technologies were the most "cost effective" option. 69 Fed. Reg. at 41,667. The EPA explained this decision on several grounds. It first noted that it was rejecting closed-cycle cooling as BTA because of (1) "its generally high costs (due to conversions)," (2) "the fact that other technologies approach the performance of this option," and (3) "concerns for energy impacts due to retrofitting existing facilities, and other considerations." *Id.* at 41,605. The EPA emphasized that it selected BTA based on its determination that "a national requirement to retrofit existing systems is not the most cost-effective approach and at many existing facilities,

retrofits may be impossible or not economically practicable." *Id.* It further explained that its rejection of closed-cycle cooling as BTA was based on "total social costs" and "lack of cost-effectiveness," as well as "concerns regarding potential energy impacts." *Id.* at 41,606.

Given the EPA's discussion, noted above, of economically practicability, it is unclear whether the Agency improperly weighed the benefits and the costs of requiring closed-cycle cooling. Indeed, a comparison between the cost of closed-cycle cooling and the monetized benefits of this technology appears to have played some role in the EPA's rejection of this option as BTA. In the preamble to the proposed Rule, for instance, the EPA examined whether to require closed-cycle cooling on specific large bodies of waters and stated that "the incremental costs of [this closed-cycle cooling] option relative to the proposed option ($413 million) significantly outweigh the incremental benefits ($146 million)." 67 Fed. Reg. at 17,158. Other record evidence on the EPA's rejection of closed-cycle cooling as BTA is a terse EPA memorandum indicating that a requirement commensurate with closed-cycle cooling for facilities on sensitive waterbodies would cost three times as much as the option ultimately adopted by the EPA and reduce entrainment, at most, by 1.33 times that option.

Given the above indications that the EPA engaged in cost-benefit analysis, we remand for the EPA to explain its conclusions. At the outset, it is difficult to discern from the record how the EPA determined that the cost of closed-cycle cooling could

not be reasonably borne by the industry.[15] Additionally, the EPA did not explain its statement that the suite of technologies "approach[es]" the performance of closed-cycle cooling. We see no adequate comparison in the Rule's proposal, the final Rule or its preamble, or the EPA's submissions to this Court of the effectiveness of closed-cycle cooling and the group of technologies whose effectiveness provided the basis for the Phase II Rule's performance standards.[16] In a technical area of this

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[15] Indeed, at one point in the Rule's proposal, the EPA mentions that requiring closed-cycle cooling at 539 existing power plants nationwide subject to the Phase II Rule would cost upwards of $2.26 billion and could close nine power plants (about 1.6% of all Phase II facilities). 67 Fed. Reg. at 17,155. There is little discussion about whether the industry could reasonably bear this burden. We note that in *Riverkeeper I*, it appears the EPA supplied the court with better data on this question, noting that of the 83 facilities subject to the Phase I Rule, dry cooling compliance costs would equal on average more than 4% of revenue for all 83 producers and more than 10% of the revenue at 12 facilities (nearly 15% of all Phase I facilities), presenting a possibly high barrier to entry for new facilities. *See Riverkeeper I*, 358 F.3d at 194. We have found no comparable data in the record, nor has the EPA cited any.

[16] Some limited evidence, however, is available in the record in intelligible form. In the Rule's proposal, the EPA noted that closed-cycle systems "generally reduce the water flow from 72 percent to 98 percent, thereby using only 2 percent to 28 percent of the water used by once-through systems." *Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities; Proposed Rule*, 67 Fed. Reg. 17,122, 17,189 (Apr. 9, 2002). The Agency went on to state that "[i]t is generally assumed that this would result in a comparable reduction in impingement and entrainment," *id.*, indicating that closed-cycle systems reduce the adverse impacts of impingement and entrainment by 72 to 98 percent. In a technical development document

sort, it is difficult for judges or interested parties to determine the propriety of the Agency's action without a justification for the action supported by clearly identified substantial evidence whose import is explained. The record evidence alone here, which consists in large part of a voluminous database compilation of studies that assess the efficacy of various technologies at different locations, is oblique, complicated, and insufficient to permit us to determine what the EPA relied upon in reaching its conclusion. As the Supreme Court has emphasized,

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("TDD") for the proposal, however, the EPA disaggregated these data, stating that closed-cycle cooling systems use 96 to 98 percent less *fresh* water and 70 to 96 percent less *salt* water than once-through systems. TDD for the Proposed § 316(b) Phase II Existing Facilities Rule 4-1; *see also Riverkeeper I*, 358 F.3d at 194 n.22 ("[C]losed-cycle wet cooling systems use 96 to 98 percent less fresh water (and 70 to 96 percent less salt water) than similarly situated once-through systems." (citing 66 Fed. Reg. at 65,273)). The EPA's analysis in its proposal suggests that the disaggregated data indicate that closed-cycle cooling would reduce impingement mortality and entrainment by 96 to 98 percent at facilities that use fresh water and by 70 to 96 percent at facilities that use salt water. A 72 to 98 percent reduction of impingement mortality and entrainment, and the corresponding disaggregated percent reductions for facilities using salt and fresh water, differs from the Phase II requirement that facilities reduce impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent. These differences seem potentially significant, especially in determining whether this suite of BTA technologies achieve essentially the same result as closed-cycle cooling, but are neither explained nor adequately compared for purposes of our review here. For instance, there does not appear to be any discussion regarding the seemingly large differences in the rates of impingement and entrainment reduction between closed-cycle cooling and the Phase II national performance standards.

"[o]ur recognition of Congress' need to vest administrative agencies with ample power to assist in the difficult task of governing a vast and complex industrial Nation carries with it the correlative responsibility of the agency to explain the rationale and factual basis for its decision, even though we show respect for the agency's judgment in both." *Bowen v. Am. Hosp. Ass'n*, 476 U.S. 610, 627 (1986) (plurality opinion).

The EPA was required to explain its judgment and the basis for it. Because the EPA purported to base its decision in large part on cost-effectiveness considerations, it was required to identify and explain any evidence indicating a minimal performance difference between comparable technologies, but it did not do so here. It stated only that the performance of the technologies it identified as BTA "approach" the performance of closed-cycle cooling.[17] We therefore find it impossible to judge whether the performance of these technologies is essentially the same as the performance of closed-cycle cooling, or whether they simply are cheaper per percentage point of reduction in entrainment and impingement mortality. That is, on the record before us, it is impossible to tell whether the EPA based its decision on permissible cost-effectiveness analysis or exceeded its authority by relying impermissibly upon

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[17] The Agency, however, did provide some indication of the relative *costs* of closed-cycle cooling and the suite of technologies identified as BTA. The EPA stated in the preamble to the Rule that the "total social cost" of closed-cycle cooling would be "$3.5 billion per year," 69 Fed. Reg. at 41,605, and that the "final rule will have total annualized social (pre-tax) costs of $389 million," *id.* at 41,650.

a cost-benefit analysis. To the extent that the record does not indicate the EPA's basis, however, its statement that "the relationship of costs to environmental benefits is an important component of economic practicability," 69 Fed. Reg. at 41,604, indicates that cost-benefit analysis, under the cover of considerations of "practicability," was central to the Agency's decisionmaking.

In short, the EPA's failure to explain its decision frustrates effective judicial review. If the EPA construed the statute to permit cost-benefit analysis, its action was not "based on a permissible construction of the statute." *Chevron*, 467 U.S. at 843. It may also be that the EPA misunderstood or misapplied cost-effectiveness analysis. If so, its decision was arbitrary and capricious because the Agency relied on factors Congress has not intended it to consider. *See Waterkeeper Alliance*, 399 F.3d at 498. Finally, the EPA may have simply failed either to perform the required analysis or to explain adequately a decision that was within its authority to make. We cannot opine on this subject, because we must consider only those justifications that the EPA offered at the time of the rulemaking. *See SEC v. Chenery*, 318 U.S. 80, 87-88 (1943). Moreover, while the EPA could rely on factors other than impingement and entrainment in establishing BTA, such as negative environmental impacts or concerns about energy production and efficiency, *see Riverkeeper I*, 358 F.3d at 195-96, we are unable to determine, on the record before us, whether the EPA gave paramount consideration to an improper factor in determining BTA. We therefore remand for

clarification of the basis for the Agency's action and possibly for a new determination of BTA.[18]

4. Performance Standards Expressed as Ranges

The Phase II Rule establishes performance standards expressed as an 80 to 95 percent reduction in impingement mortality and a 60 to 90 percent reduction in entrainment, which existing power plants must achieve, subject to certain exceptions, in order to be considered in compliance with the Rule. 40 C.F.R. § 125.94(b)(1), (2). The environmental petitioners challenge the Rule's "wide and indeterminate ranges" as failing to constitute "precise single-level limitations based on the best technology available for minimizing adverse environmental impact" and argue that these ranges

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[18] As previously noted, the environmental petitioners, supported by amicus curiae OMB Watch, have challenged the EPA's decision to reject closed-cycle cooling as BTA for 59 facilities on the most sensitive waterbodies in part because of OMB's participation in the rulemaking process. They contend that the EPA's action is not entitled to deference because the EPA was improperly influenced by OMB in promulgating this aspect of the Phase II Rule. The petitioners and the EPA have also sought either to strike from the record or to supplement the record with certain OMB review documents. Because we have granted the petitioners' challenge to the EPA's determination of BTA without considering OMB's role in interagency review, we do not reach the petitioner's arguments regarding OMB's involvement in the rulemaking and deny the motions to strike and to supplement as moot. *See Waterkeeper Alliance*, 399 F.3d at 524 n.34 (denying petitioners' motion to supplement the record with OMB review documents as moot where the Court granted the petitions without considering the OMB review documents).

are inconsistent with Congress's intent that there be a national standard under section 316(b). We agree in part and, because the EPA in reconsidering its selection of BTA on remand may alter the suite of technologies it originally selected, thereby causing a coordinate alteration in the performance ranges, we provide some guidance to the EPA insofar as the petitioners' challenge touches on the limits of the Agency's authority. Although the EPA may, in the circumstances to be discussed, set performance standards as ranges, it must require facilities to minimize the adverse environmental impacts attributable to their cooling water intake structures to the best degree they can.

The petitioners note that the EPA has found that certain screens and filter systems can reduce impingement mortality by up to 99 percent and that similar technologies can produce 80 to 90 percent reduction in entrainment. 69 Fed. Reg. at 41,599. They contend that the CWA therefore requires the EPA to set BTA standards reflecting these best performers, *see Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928 (5th Cir. 1998) ("Congress intended these [BAT] limitations to be based on the performance of the single best-performing plant in an industrial field." (citation and internal quotation marks omitted)), particularly given the EPA's acknowledgment that "[t]he higher end of the range is a percent reduction that available data show many facilities can and have achieved with the available technologies upon which the performance standards are based." 69 Fed. Reg. at 41,600. The petitioners emphasize that the Rule's ranges impermissibly fail to require facilities even to attempt to achieve

performance equal to the upper bound of the prescribed ranges.

According to the EPA, section 316(b) does not require a single-numeric standard applicable to all Phase II existing facilities, and expressing the performance standards as ranges is necessary to account for the variables involved in reducing impingement mortality and entrainment under local conditions at particular facilities. The EPA contends that "[b]ecause the Phase II requirements are applied in a variety of settings and to existing facilities of different types and sizes, no single technology is most effective for all facilities subject to the Rule." The Agency argues that the technologies do not provide a fixed level of performance at all facilities and that their performance is affected by the nature of the waterbody, facility intake requirements, climatic conditions, and the waterbody's biology. The EPA argues also that the permit process requires facilities to reduce impingement mortality and entrainment commensurate with the efficacy of the installed technologies, which it claims ensures that the installed technologies will be maintained to ensure their utmost efficacy.[19] The difficulty with the EPA's arguments is that the Rule does not require facilities

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[19] The specific provision requires that when a facility's permit expires, any reissued permit must contain a requirement that "the facility . . . reduce impingement mortality and entrainment . . . commensurate with the efficacy at the facility of the installed design and construction technologies, operational measures, and/or restoration measures." 40 C.F.R. § 125.98(b)(1)(iii).

to choose technologies that produce the greatest reduction possible.

Our decision in *Riverkeeper I* sheds some light on the parties' arguments. In that case, we discussed the differences between the two tracks in the Phase I Rule: Track I set forth precise velocity and capacity requirements while Track II permitted compliance via technologies that would achieve at least 90 percent of the reduction in impingement mortality and entrainment that compliance with Track I would yield. *See* 358 F.3d at 182-83. The petitioners in that case challenged the Track II provision on the ground that it deviated from the statutory requirement that the EPA establish a single level of performance applicable to all facilities. *Id.* at 187. The EPA argued that Tracks I and II reflected the same standard and that 10 percent is an acceptable margin of error given that measurements of reduction of impingement mortality and entrainment are necessarily inexact and depend upon natural fluctuations in animal populations and sampling errors. *Id.* at 188. In assessing the parties' arguments, we stated that "the EPA, consistent with Congress's intention that there be a national standard governing the discharge of pollutants, must promulgate *precise effluent limitations* under sections 301 and 306 . . . ." *Id.* (emphasis added). We went on to note, however, that while pollutant concentration and the velocity and volume of water withdrawn can be measured accurately, impingement mortality and entrainment "cannot always be measured directly and with mathematical precision." *Id.* at 189. We concluded that the EPA acted reasonably in specifying "how much ambiguity

it is willing to tolerate in measuring compliance and what it considers a reasonable margin of error in comparing the performance of different technologies." *Id.* In short, we acknowledged that the Track II performance requirements, unlike the Track I requirements, could not be measured precisely and that it was therefore reasonable to consider a margin of error in comparing performance under the two standards.

This case is not entirely similar to *Riverkeeper I* because of the rationales that animate the EPA's creation of the performance ranges in Phases I and II. The Phase II Rule generally require facilities to reduce impingement mortality and entrainment by the specified percent ranges from the calculation baseline. 40 C.F.R. § 125.94(b). These ranges, as explained by the EPA, are based on the reductions achievable by using various technologies. *See* 69 Fed. Reg. at 41,599. The EPA explained that it expressed the performance standards "in the form of ranges rather than a single performance benchmark because of the uncertainty inherent in predicting the efficacy of any one of these technologies." *Id.* at 41,600. It stated further that the lower end of the range is the percent reduction it "expects all facilities could eventually achieve if they were to implement and optimize available design and construction technologies and operational measures on which the performance standards are based" and that the higher end of the range "is a percent reduction that available data show many facilities can and have achieved with the available technologies upon which the performance standards are based." *Id.* Unlike *Riverkeeper I*, therefore, a

margin of error from a relatively precise benchmark that is tolerable given measurement difficulties is not at issue here. Instead, the performance standards reflect the range of performance associated with various technologies identified as BTA. That performance, in turn, depends in part on local conditions and natural fluctuations. *Id.*

Record evidence supports the EPA's conclusion that the percent reduction of impingement mortality and entrainment is not completely within the control of a facility and therefore may not be precisely achieved by a facility. *See* TDD for the Final § 316(b) Phase II Existing Facilities Rule 4-3. Reducing these adverse environmental impacts is not as easily measured and controlled as are the discharge of pollutants and the capacity and flow rate of water intake.[20] We therefore acknowledge that in many cases it may be difficult, as a practical matter, for the EPA or other permitting authority to predict which plants will be able to achieve the upper, as opposed to the lower, end of the ranges. This uncertainty, however, does not justify a rule that permits even those facilities that could achieve the upper end of a range to be deemed in compliance if they reach only the lower

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[20] Nothing in *Hooker Chems. & Plastics Corp. v. Train*, 537 F.2d 620 (2d Cir. 1976), suggests the contrary. While we did announce in that case that performance ranges did not comport with the effluent limitations established by the CWA, *id.* at 630, the discharge limitations at issue there were easily measured, unlike the reductions in impingement and entrainment at issue in both this case and *Riverkeeper I*, which "cannot always be measured directly and with mathematical precision." *Riverkeeper I*, 358 F.3d at 189.

end, particularly when the EPA has acknowledged that many facilities "can and have" achieved reductions at the high end of the range. 69 Fed. Reg. at 41,600. Congress's use of the superlative "best" in the statute cannot be read to mean that a facility that achieves the lower end of the ranges, but could do better, has complied with the law. The statutory directive requiring facilities to adopt the *best* technology cannot be construed to permit a facility to take measures that produce second-best results, *see Chevron*, 467 U.S. at 843, especially given the technology-forcing imperative behind the Act, *Natural Res. Def. Council*, 822 F.2d at 123. Insofar as the EPA establishes performance standards instead of requiring facilities to adopt particular technologies, it must require facilities to choose the technology that permits them to achieve as much reduction of adverse environmental impacts as is technologically possible.[21] For this reason, the EPA

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[21] Although it may be difficult to know *ex ante* which plants can achieve the upper end of the range, this is at least in part because the technologies preferred by the EPA are somewhat new and untested. In future permitting cycles, permitting authorities will be likely to have a clearer notion of which facilities can feasibly achieve the upper end of the range.

Finally, the upper end of the range established by the EPA, should it retain this provision on remand, should not be set at a level that many facilities "have achieved" with the installation of one or more of the technologies determined to be BTA but, as we noted earlier, at the best possible level of impingement and entrainment reduction the EPA determines these technologies can achieve. *See, e.g.*, *Kennecott*, 780 F.2d at 448 ("In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible."). If, at a particular Phase II facility, the adoption of BTA technologies can achieve a 95% reduction in entrainment and impingement, it is unclear why,

on remand should address these concerns if in its BTA determination, it retains performance ranges.

B. Restoration Measures

The Phase II Rule allows a facility to meet the national performance standards set forth in 40 C.F.R. § 125.94(b) through the use of restoration measures such as restocking fish killed by a cooling water system and improving the habitat surrounding the intake structure in order, as the EPA explains, "to provide additional flexibility to facilities in complying with the rule by eliminating or significantly offsetting the adverse environmental impact caused by the operation of a cooling water intake structure." 69 Fed. Reg. at 41,609; 40 C.F.R. § 125.94(c). The state and environmental petitioners contend that the EPA exceeded its authority by allowing compliance with section 316(b) through restoration measures because *Riverkeeper I* held that the statute's meaning is plain and that restoration

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under our jurisprudence and the clear dictates of the CWA, the EPA could establish a performance standard that has placed the ceiling at the 90% threshold which "many" Phase II facilities "can and have" achieved with the same technology. *See Am. Iron & Steel Institute v. EPA*, 526 F.2d 1027, 1051 (3d Cir. 1975) ("It will be sufficient, for the purpose of setting the level of control under available technology, that there be one operating facility which demonstrates that the level can be achieved.") (internal quotation marks and citations omitted). This would not require every Phase II facility to meet the upper end of the ranges, but only that each Phase II facility achieve the highest reduction it can with the installation of technologies determined by the EPA to be BTA. The performance ranges, if retained on remand, should accordingly reflect this understanding.

measures cannot substitute for the "best technology available for minimizing adverse environmental impact" in cooling water intake structures. The EPA contends that its interpretation of the statute to permit restoration measures as a means of compliance is entitled to deference because it defined certain statutory terms in the Phase II Rule that it had not defined in the Phase I Rule. The EPA also relies on the Supreme Court's holding in *National Cable & Telecommunications Association v. Brand X Internet Services*, 545 U.S. 967, 125 S. Ct. 2688 (2005), and our statement in *Riverkeeper I* limiting the decision's reach to the Phase I Rule, to argue that our prior interpretation of the statute does not trump the Agency's construction. We agree with the petitioners that *Riverkeeper I* held that the Agency's decision to permit restoration measures in the Phase I Rule was not "based on a permissible construction of the statute," *Chevron*, 467 U.S. at 843, and that this holding applies equally here.

We began *Riverkeeper I* by noting that we were remanding the Phase I restoration provision because it "contradicts Congress's clearly expressed intent." 358 F.3d at 181. We went on to state that "however beneficial to the environment, [restoration measures] have nothing to do with the location, the design, the construction, or the capacity of cooling water intake structures, because they are unrelated to the structures themselves." *Id.* at 189. "Restoration measures *correct* for the adverse environmental impacts of impingement and entrainment," we noted, but "they do not *minimize* those impacts in the first place." *Id.* (emphasis added). For this reason and others, we concluded in

Riverkeeper I that the EPA had exceeded its authority in promulgating the Phase I Rule by allowing compliance with section 316(b) through restoration measures because this Rule was "plainly inconsistent" with the statute's text and Congress's intent. *Id.* at 189, 191.

The EPA's argument that *Riverkeeper I* is not binding on this issue here has three components. First, the EPA contends that our rejection of the restoration measures at issue in *Riverkeeper I* did not turn on the statute's text, but instead was based on various other indicators of Congressional intent. The Agency makes much of *Riverkeeper I*'s brief discussion of Congress's rejection of a proposed amendment to section 316(b) that would have explicitly allowed restoration measures and of the EPA's support of that amendment because in its opinion, the existing language did not authorize restoration measures. *Id.* at 190-91. Second, the EPA argues that its interpretation of section 316(b) in the Phase II Rule is entitled to deference because the Rule defined certain statutory terms it had not defined in the previous rulemaking phase and that its reasonable interpretation of these terms is entitled to deference. Specifically, the Agency "defined" three statutory terms in the preamble: it (1) read the phrase "minimiz[e] adverse environmental impact" to let facilities "minimize adverse environmental impact by reducing impingement and entrainment, or to minimize adverse environmental impact by compensating for those impacts after the fact," 69 Fed. Reg. at 41,628; (2) interpreted "reflect" to authorize it to consider the full range of technologies, including restoration

measures, that minimize adverse environmental impact; and (3) viewed "restoration measures as part of the 'design' of a cooling water intake structure," and "one of several technologies that may be employed . . . to minimize adverse environmental impact," 69 Fed. Reg. at 41,637. Finally, the EPA relies on our statement in *Riverkeeper I* that our ruling on the Phase I Rule was not meant to "predetermine the factors and standard[s] applicable to Phases II and III of the rulemaking," 358 F.3d at 186 n.13, and on the Supreme Court's holding in *Brand X* that "[a] court's prior judicial construction of a statute trumps an agency construction otherwise entitled to *Chevron* deference only if the prior court decision holds that its construction follows from the unambiguous terms of the statute and thus leaves no room for agency discretion." 545 U.S. at —, 125 S. Ct. at 2700.

We reject each of the EPA's contentions. First, our primary conclusion in *Riverkeeper I* was that restoration measures are "plainly inconsistent" with the statute's text, 358 F.3d at 189, and our statements regarding the legislative history of a proposed amendment, which we offered as ancillary, but not dispositive, support for our construction of the statute, in no way diminish the force of our conclusion that Congress unambiguously expressed its intent in the statute. *See Chevron*, 467 U.S. at 842-43 ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."). Second, as to the EPA's claim that its construction of the statute is entitled to deference because it has now interpreted

certain statutory terms, our holding in *Riverkeeper I* was and remains clear: restoration measures contradict the unambiguous language of section 316(b). The EPA's promulgation of the Phase II Rule obviously did nothing to alter the text of section 316(b), and the Agency cannot create ambiguity where none otherwise exists by defining statutory terms contrary to their plain meaning. Finally, as the foregoing analysis suggests, our decision in *Riverkeeper I* foreclosed the EPA from interpreting section 316(b) in the Phase II Rule to permit restoration measures as a means of complying with the statute, and, therefore, nothing in *Brand X* undermines the precedential value of our prior holding. Our statement in *Riverkeeper I* that we did not "mean to predetermine the factors and standard applicable to Phases II and III of the rulemaking," was made in the narrow context of identifying "one reasonable reading" of particular statutory language relating to the standard for new and existing sources, not the restoration measures. 358 F.3d at 186 n.13. Where we held that the statutory language is unambiguous, *Riverkeeper I* is binding.

Even assuming arguendo that we did not consider ourselves bound by *Riverkeeper I*, we are persuaded by its reasoning as applied here. Restoration measures are not part of the location, design, construction, or capacity of cooling water intake structures, *Riverkeeper I*, 358 F.3d at 189, and a rule permitting compliance with the statute through restoration measures allows facilities to avoid adopting *any* cooling water intake structure technology at all, in contravention of the Act's clear language as well as its technology-forcing principle.

As we noted in *Riverkeeper I*, restoration measures substitute after-the-fact compensation for adverse environmental impacts that have already occurred for the minimization of those impacts in the first instance. *Id.* The Agency's attempt to define the word "minimize" to include "compensati[on] . . . after the fact," 69 Fed. Reg. at 41,628, is simply inconsistent with that word's dictionary definition: "to reduce to the smallest possible extent," Webster's Third New Int'l Dictionary 1438 (1986).

Accordingly, the EPA impermissibly construed the statute by allowing compliance with section 316(b) via restoration measures, and we remand that aspect of the Rule.

C. Site-Specific Compliance Alternatives

As noted earlier, the Phase II Rule includes two site-specific compliance alternatives or variances from the generally applicable requirements. The cost-cost alternative authorizes a site-specific determination that "data specific to [a] facility demonstrate that the costs of compliance under . . . this section would be significantly greater than the costs considered by the Administrator . . . in establishing the applicable performance standards," 40 C.F.R. § 125.94(a)(5)(i), while the cost-benefit alternative authorizes a site-specific determination that "data specific to [a] facility demonstrate that the costs of compliance under . . . this section would be significantly greater than the benefits of complying with the applicable performance standards." *Id.* § 125.94(a)(5)(ii). If a facility makes either showing, the permitting authority "must make a site-specific

determination of the best technology available" and impose "site-specific alternative requirements" that are "as close as practicable to the applicable performance standards." *Id.* § 125.94(a)(5)(i), (ii).

Petitioners challenge the cost-cost compliance alternative because, *inter alia*, they claim as a threshold matter that the Agency failed to comply with the APA's notice and comment requirements by disclosing cost data for specific facilities that would be used in determining whether a facility qualifies for the cost-cost compliance alternative only at the time the final Rule was issued. Petitioners also challenge the cost-benefit compliance alternative on two substantive grounds. They contend that this alternative (1) impermissibly allows compliance with the statute to be based on cost-benefit analysis and (2) is analogous to a water-quality standard, which the Act permits only for thermal pollution. CWA § 316(a), 33 U.S.C. § 1326(a). We address each of these arguments in turn.[22]

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[22] Section 316(b) does not specifically authorize the Agency to allow variances from generally applicable requirements. In *Riverkeeper I*, we accepted the argument that the EPA can allow variances even in the absence of explicit statutory authority. 358 F.3d at 193. Although the statutes to which section 316(b) refers contained variance provisions, we did not read them to require that section 316(b) permit (or by its silence prohibit) variances. Instead, we stated that

> [s]ection 316(b)'s silence with respect to variances does not . . . equal an unambiguous prohibition. In the absence of such a statutory bar, we think, consistent with precedent, that it is reasonable for the EPA to allow variances from regulations promulgated pursuant to section 316(b), for a regulatory system which allows

1. Cost-Cost Compliance Alternative

As already noted, a variance may be available to a facility pursuant to 40 C.F.R. § 125.94(a)(5)(i) if the facility's compliance costs would be "significantly greater than" the costs considered by the Agency "in establishing the applicable performance standards." This variance requires a calculation of compliance costs based on the suite of BTA technologies that the EPA has identified and promulgated in the final Rule. 69 Fed. Reg. at 41,644-46. We remand this provision because (1) the EPA did not give interested parties the requisite notice and opportunity to challenge the variance by failing to identify cost data for actual, named facilities, as opposed to model facilities, until after the notice and comment period had ended, *Sprint Corp.*, 315 F.3d at 371, and (2) the variance is expressly premised on the validity of the

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> flexibility, and a lessening of firm proscriptions in a proper case, can lend strength to the system as a whole.

Id. at 193 (citation and internal quotation marks omitted).

Riverkeeper I thus rejected the view that the EPA's authority to grant a variance from the generally applicable requirements of a rule promulgated pursuant to section 316(b) derives from the statutory variance provisions in other sections of the Act. Instead, *Riverkeeper I* found that the variance provision would not be authorized if it left alternative requirements to the Agency's "unfettered discretion" but would be authorized if it "guide[d] the permitting authority to consider appropriate factors and allow[ed] relaxation of the Rule's uniform technology requirements only insofar as necessary to account for unusual circumstances not considered by the Agency during its rulemaking." *Id.* at 193-94 (internal quotation marks omitted).

BTA determination,[23] which itself has been remanded for further explanation, *see, e.g.*, *Solite Corp. v. U.S. EPA*, 952 F.2d 473, 494-95 (D.C. Cir. 1991) (remanding rule where the underlying grounds for its promulgation had been remanded to the EPA for procedural defects); *cf. Chenery*, 318 U.S. at 87-88 (a rule may only be upheld on the grounds that the agency proffers).

In the Rule's proposal, the EPA indicated that it had estimated compliance costs for 539 "model plants" based on factors such as "fuel source, mode of electricity generation, existing intake technologies, waterbody type, geographic location, and intake flow." 67 Fed. Reg. at 17,144. An accompanying technical development document set forth the Agency's cost calculation methodology for these model plants and listed the compliance cost estimates for each of the 539 model plants. The proposal indicated that a facility must "determine which model plant [it] most closely" resembles in order to identify the costs considered by the Agency in establishing the national performance standards. *See id.* The EPA subsequently published in the Federal Register a so-called Notice of Data Availability ("NODA") in which it explained that it had changed its methodology for estimating the model plants' compliance costs. *Proposed*

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[23] This variance requires a comparison between the actual costs of compliance and those contemplated by EPA under the Rule. Because the Agency has calculated the costs it believes specific facilities will incur in adopting the appropriate BTA technologies (as currently defined) and then promulgated these costs in the final Rule, any change in the selection of BTA on remand will necessarily alter these costs.

Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities; Notice of Data Availability; Proposed Rule, 68 Fed. Reg. 13,522, 13,527 (Mar. 19, 2003). Accompanying documents explained in greater detail the costing methodology and cost data underlying the revised approach. The revised proposal, however, did not depart from the "model plant" approach. The final Rule, by contrast, assigned cost estimates to specific, named facilities rather than model facilities. 69 Fed. Reg. at 41,670-82. The Agency explained in the preamble to the final Rule that the EPA will adjust facility-specific costs pursuant to a multiple-step calculation formula to arrive at a final estimated cost the EPA considers a comparison for purposes of the cost-cost variance. *Id.* at 41,644-47.

The EPA acknowledges that it did not disclose in the proposal or the NODA specific facility names in connection with cost data and explains that it failed to do so because it needed to protect certain confidential business information ("CBI") and had not developed during the proposal stage a means to protect that information while still providing cost data to the public. We accept the EPA's argument that masking the facility names did not prevent interested parties from commenting on the methodology and general cost data underlying the EPA's approach because the NODA explained the costing methodology and because the general cost data, while not identified by the Agency as relating to actual, specific facilities, was made available to interested parties. *Nat'l Wildlife Fed.*, 286 F.3d at 564-65 (holding that the EPA cannot be faulted for lack of notice in not releasing CBI data). We are

persuaded, however, that the release of information and request for comments on the EPA's new approach to developing compliance cost modules via the NODA did not afford adequate notice of the costs associated with specific facilities promulgated in the final Rule.

We have previously stated that "[n]otice is said not only to improve the quality of rulemaking through exposure of a proposed rule to comment, but also to provide fairness to interested parties and to enhance judicial review by the development of a record through the commentary process." *Nat'l Black Media Coalition v. FCC*, 791 F.2d 1016, 1022 (2d Cir. 1986). "While a final rule need not be an exact replica of the rule proposed in the Notice, the final rule must be a 'logical outgrowth' of the rule proposed." *Id.* "The test that has been set forth is whether the agency's notice would fairly apprise interested persons of the subjects and issues" of the rulemaking. *Id.* (citation and internal quotation marks omitted).[24] Agencies accordingly are not

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[24] The D.C. Circuit has phrased the test somewhat differently, stating that "[w]hether the 'logical outgrowth' test is satisfied depends on whether the affected party 'should have anticipated' the agency's final course in light of the initial notice." *Covad Comms. Co. v. FCC*, 450 F.3d 528, 548 (D.C. Cir. 2006) (citation omitted). It has also indicated that "[t]he 'logical outgrowth' doctrine does not extend to a final rule that finds no roots in the agency's proposal because something is not a logical outgrowth of nothing, nor does it apply where interested parties would have had to divine the agency's unspoken thoughts because the final rule was surprisingly distant from the Agency's proposal." *Envtl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005) (citations, internal quotation marks, and alteration omitted).

permitted "to use the rulemaking process to pull a surprise switcheroo." *Envtl. Integrity Project*, 425 F.3d at 996.

Here, only the final Rule identified facilities by name in estimating compliance costs. Interested parties therefore could not comment on the basis for particular facilities' cost figures that the EPA established. This is problematic because the availability of a variance turns on the relationship between the costs estimated in the Rule and those that a specific facility establishes in a permit proceeding. The EPA focuses on the notice it gave of its intended methodology for calculating the costs the Agency considered, but ignores the overriding importance of the cost estimates for a particular facility in determining whether a *site-specific* cost-cost variance is appropriate. Thus, the EPA should have afforded notice and an opportunity to challenge the cost estimates for specific facilities and not simply an opportunity to comment on the EPA's methodology and general cost data.[25] We remand

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[25] Because we remand on this procedural ground, we do not consider the provision on the merits. We presume that after comment on remand, however, the EPA will reevaluate the merits of the cost-cost variance provision, particularly in light of any reevaluation of BTA in which the Agency may engage. While we do not decide the issue here, we note our discomfort with the "significantly greater than" standard of 40 C.F.R. § 125.94(a)(5)(i), given the historical applicability of a "wholly disproportionate to" standard and the use of the latter standard in the Phase I Rule. We have not found entirely persuasive the EPA's position that

> [t]his difference in standards for new and existing facilities is based on (1) the greater flexibility available

this variance for inadequate notice and because of our remand of the BTA determination.

2. Cost-Benefit Compliance Alternative[26]

If a facility requests that it be permitted to demonstrate compliance with the Phase II Rule through the site-specific cost-benefit provision of 40 C.F.R. § 125.94(a)(5)(ii), the facility must submit with its application a Comprehensive Cost Evaluation Study, Benefits Valuation Study, and Site Specific Technology Plan. 40 C.F.R. § 125.95(b)(6). As part of the Benefits Valuation Study, the facility must indicate the monetized value

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> to new facilities for selecting the location of their intakes and installing technologies at lower costs relative to the costs associated with retrofitting existing facilities and (2) the desire to avoid economically impracticable impacts on energy prices, production costs, and energy production that could occur if large numbers of Phase II existing facilities incurred costs that were more than "significantly greater" than but not "wholly out of proportion" to the costs in EPA's record.

68 Fed. Reg. at 13,541. The EPA would presumably consider each of these two factors in establishing BTA for existing facilities, and need not further consider them in determining whether a particular facility warrants a variance from the generally applicable BTA. Because cost is not supposed to be a paramount consideration in determining BTA, *see Riverkeeper I*, 358 F.3d at 185, the "significantly greater than" standard poses substantial concerns.

[26] In contrast to the cost-cost variance, the cost-benefit compliance alternative will not change on remand for the reconsideration of BTA. We thus reach the merits here.

of commercial, recreational, and ecological benefits of compliance with the generally applicable national performance standards as well as a qualitative assessment of any so-called "non-use" benefits that cannot be monetized. 40 C.F.R. § 125.95(b)(6)(ii)(A), (E). Ultimately, the facility must demonstrate that its compliance costs are "significantly greater than" the benefits of compliance. The petitioners contend that this alternative impermissibly focuses on cost-benefit considerations, contrary to Congress's directive, and is analogous to the kind of water-quality-based standard we found to be inconsistent with the statute in *Riverkeeper I*. 358 F.3d at 190. For both reasons, we are persuaded that the EPA exceeded its authority in permitting site-specific cost-benefit variances. In light of this conclusion, we do not reach the industry petitioners' claim that the provision impermissibly requires consideration of qualitative non-use benefits in the cost-benefit analysis.

As we discussed previously in analyzing the EPA's determination of BTA, cost-benefit analysis is not consistent with the requirement of § 316(b) that cooling water intake structures "reflect the best technology available for minimizing adverse environmental impact." Indeed, the statutory language requires that the EPA's selection of BTA be driven by technology, not cost. The Agency is therefore precluded from undertaking such cost-benefit analysis because the BTA standard represents Congress's conclusion that the costs imposed on industry in adopting the best cooling water intake structure technology available (i.e., the best-performing technology that can be reasonably

borne by the industry) are worth the benefits in reducing adverse environmental impacts. *Cf. Am. Textile Mfrs. Inst.*, 452 U.S. at 509 (noting that where Congress has defined the basic relationship between costs and benefits, a regulatory standard that strikes a different balance is inconsistent with the statute). Just as the Agency cannot determine BTA on the basis of cost-benefit analysis, it cannot authorize site-specific determinations of BTA based on cost-benefit analysis.

The cost-benefit variance also impermissibly authorizes the EPA to consider the degraded quality of waterways in selecting a site-specific BTA. We stated in *Riverkeeper I* that in enacting the CWA, Congress rejected regulation by reference to water quality standards. 358 F.3d at 189-90. Before 1972, Congress "regulated point sources based on their effect on the surrounding water and allowed sources to discharge pollutants provided the discharge did not cause water quality to dip below an acceptable level." *Id.* at 189. Congress changed its approach in 1972, in part because a plaintiff attempting to prove a violation of the law faced a nearly impossible burden of showing that a particular polluter had caused the water quality to dip below the regulatory standards. *Id.* at 189-90. The Act now regulates discharges from point sources rather than water quality. We thus concluded in *Riverkeeper I* that water-quality standards cannot be considered under section 316(b). *Id.* at 190. Of course, "water quality" in the context of the Act is generally understood to refer to pollutant concentration. As we noted in *Riverkeeper I*, however, for purposes of section 316(b), which regulates water intake rather than the

discharge of pollutants, water quality is "measured by wildlife levels." *Id.* at 189. This analysis in *Riverkeeper I* is, thus, equally applicable here.[27]

The challenged provision of the Phase II Rule apparently would permit a facility to argue that, based on water quality (i.e., the level of aquatic wildlife in a particular body of water), the cost of complying with the national performance standards is not justified. The Agency explained in the preamble to the Rule that "in a waterbody that is already degraded, very few aquatic organisms may be subject to impingement or entrainment, and the costs of retrofitting an existing cooling water intake structure may be significantly greater than the benefits of doing so." 69 Fed. Reg. at 41,604. This

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[27] As the petitioners note, section 316(a) permits consideration of the quality of the receiving water for purposes of granting variances with respect to the rules concerning thermal pollution. Section 316(a) provides that the Administrator may issue a variance to the rules governing "thermal discharges" to a facility that establishes that those rules "require effluent limitations more stringent than necessary to assure the pro[t]ection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made." CWA § 316(a), 33 U.S.C. § 1326(a). As the petitioners also note, section 316(b) does not similarly permit consideration of the quality of the receiving water, and this distinction is significant. *See Russello*, 464 U.S. at 23. Moreover, as we discussed in *Riverkeeper I*, the heat-pollution provision of section 316(a) is a "notable exception" to the CWA, which "otherwise relies on limitations on what a source can put into the water, not the ultimate effect of that discharge." 358 F.3d at 190. Nothing in the statute, therefore, supports the view that the EPA can consider the quality of the receiving water in granting variances from generally applicable rules promulgated pursuant to section 316(b).

kind of water-quality-based regulation is not authorized by the CWA because it would exempt facilities from meeting the mandated performance standards simply because wildlife levels in the waterbody were already low, and as we held in *Riverkeeper I*, the CWA does permit the EPA to consider water quality in making BTA determinations. Finally, we note that to the extent that facilities on highly degraded waterbodies with relatively low wildlife levels face high compliance costs to achieve the national performance standards, those facilities may qualify for the cost-cost variance if such variance is retained on remand.

Because the EPA exceeded its authority under section 316(b) by permitting (1) cost-benefit analysis and (2) assessment of the quality of the receiving water (i.e., the receiving water's wildlife levels) in determining whether a variance is warranted, we do not need to defer to the Agency's construction of the statute. We therefore remand this aspect of the Rule.

D. TIOP Provision

The Phase II Rule's TIOP provision, 40 C.F.R. § 125.94(d), permits a facility to comply with the national performance standards determined on the basis of whether the facility has "complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of a Technology Installation and Operation Plan." *Id.* § 125.94(d)(1). The petitioners contend that this provision impermissibly allows a facility's compliance to be determined not by reference to the performance standards themselves, but by

evaluating whether a facility has complied with a plan to achieve the performance standards. In other words, they argue that the TIOP provision essentially allows for an unauthorized margin of error. The petitioners also argue that the EPA denied the public an opportunity to comment on the provision. Like the cost-cost compliance alternative, remand is appropriate here on two grounds: (1) the EPA did not give adequate notice regarding the provisions in section 125.94(d)(2); and (2) the record justification for the TIOP provision depends on the EPA's selection of a suite of technologies as BTA, a selection which has been remanded for further explanation. Given this, we remand the TIOP provision without reaching the merits here.

The Rule provides that during the first permit term, a facility may request that its compliance be determined based on whether it has complied with its TIOP, which must be designed to meet the performance standards, 40 C.F.R. § 125.94(d)(1), and submitted with a permit application, *id.* § 125.95(b)(4)(ii). During subsequent permit terms, if a facility has complied with its TIOP but is not meeting the performance standards, the facility may request that its compliance with the standards during the following term be based on whether it remains in compliance with its TIOP, revised in accordance with the facility's adaptive management plan. 40 C.F.R. § 125.94(d)(2). The EPA explained in the Rule's preamble that it is difficult to determine reductions in impingement mortality and entrainment relative to what would have occurred in the absence of control technologies given natural variability and the vagaries of sampling methods. 69

Fed. Reg. at 41,613. The EPA explained further that it established the TIOP compliance options to account for these variabilities on the ability of a technology to meet the performance standards consistently over time. *Id.* at 41,613-14.

As previously noted, a "final rule must be a 'logical outgrowth' of the rule proposed." *Nat'l Black Media Coalition*, 791 F.2d at 1022. The final rule must have roots in the proposal, *Envtl. Integrity Project*, 425 F.3d at 996, which must "fairly apprise interested persons of the subjects and issues" involved in the rulemaking, *Nat'l Black Media Coalition*, 791 F.2d at 1022. An agency cannot "pull a surprise switcheroo" on interested parties between a proposal and the issuance of a final rule. *See Envtl. Integrity Project*, 425 F.3d at 996.

Although the Rule's proposal notified interested parties that the Agency was considering a provision that would give facilities time to achieve the performance standards after implementing new technologies, the EPA gave inadequate notice of the potentially indefinite scope of this provision. Specifically, the EPA failed to provide notice of the Rule codified at 40 C.F.R. § 125.94(d)(2), which permits a facility to be deemed in compliance with the Phase II Rule in subsequent permit terms if it continues to adhere to its TIOP.

In the Rule's proposal, the EPA stated only that it was considering "the need for regulatory language that would allow facilities time to come into compliance [with the performance standards] if they choose to install technologies to meet the

performance standards." 68 Fed. Reg. at 13,586. The proposal indicated further that the EPA was "evaluating and considering allowing six months, one year, two years, or five years (one permit term) for a facility to come into compliance after issuance of its permit." *Id.* The TIOP provision in the final Rule, by contrast, does not simply allow facilities additional time, up to one permit term, to come into compliance with the performance standards. Instead, it appears to permit a facility to satisfy the Rule's requirements in subsequent permit terms, for an indefinite period, without ever demonstrating compliance with the performance standards, so long as the facility has adhered to its TIOP. 40 C.F.R. § 125.94(d)(2) (stating that "[d]uring subsequent permit terms" a facility "may request that compliance . . . be determined based on whether [it] remain[s] in compliance with" its TIOP). This aspect of the TIOP provision appears then not to be a "logical outgrowth" of the proposal, *see Nat'l Black Media Coalition*, 791 F.2d at 1022, because interested parties would not have divined from the proposal that facilities could be given an indefinite period to come into compliance with the national performance standards.

We thus remand the rule for failure to provide notice and comment and because the record justification for the TIOP provision depends on the EPA's selection of BTA, which has been remanded.

E. Definitions of "New Facility" and "Existing Facility"

The environmental petitioners challenge the reclassification in the Phase II Rule preamble of certain new constructions as "existing facilities," thereby rendering them subject to the Phase II Rule rather than the more stringent Phase I requirements that apply to new facilities. We agree with the petitioners that the Agency interpretively modified a definition appearing in the Phase I Rule via statements in the preamble to the Phase II Rule without providing interested parties notice and an opportunity for comment.

"An agency's interpretation of its own . . . regulation must be given controlling weight unless it is plainly erroneous or inconsistent with the regulation." *Fowlkes v. Adamec*, 432 F.3d 90, 97 (2d Cir. 2005) (citations and internal quotation marks omitted). Although we typically owe considerable deference to an agency's construction of its own regulation, *Udall v. Tallman*, 380 U.S. 1, 16 (1965), "[u]nder settled principles of statutory and rule construction, a court may defer to administrative interpretations of a statute or regulation *only* when the plain meaning of the rule itself is doubtful or ambiguous," *Pfizer, Inc. v. Heckler*, 735 F.2d 1502, 1509 (D.C. Cir. 1984) (emphasis in original). "Deference to agency interpretations is not in order if the rule's meaning is clear on its face." *Id.* Implicit in the rule that an agency cannot interpret a regulation contrary to its unambiguous meaning is the requirement that "an agency must adhere to its own rules and regulations." *Reuters Ltd. v. FCC*, 781

F.2d 946, 950 (D.C. Cir. 1986). An agency may modify a regulation that has already been promulgated, therefore, only through the process of notice and comment rulemaking. *See Alaska Prof'l Hunters Ass'n, Inc. v. FAA*, 177 F.3d 1030, 1034 (D.C. Cir. 1999); *see also* 5 U.S.C. § 551(5) (defining "rule making," which is governed by the notice and comment requirements of 5 U.S.C. § 553, as the "agency process for formulating, amending, or repealing a rule"); *Shalala v. Guernsey Memorial Hosp.*, 514 U.S. 87, 100 (1995) (noting in dicta that APA rulemaking is required where an agency interpretation "adopt[s] a new position inconsistent with . . . existing regulations").

The Phase I Rule defined "new facility" as any structure whose construction commenced after January 17, 2002 that meets both the definition of "new source" in 40 C.F.R. § 122.29 (discussed below) *and* one of two other requirements: the structure must use either (1) "a newly constructed cooling water intake structure" or (2) "an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water." *See* 40 C.F.R. § 125.83. A "new source" under section 122.29 is a facility that (1) "is constructed at a site at which no other source is located," (2) "totally replaces the process or production equipment that causes the discharge of pollutants at an existing source," or (3) undertakes "processes . . . *substantially independent* of an existing source at the same site."[28] 40 C.F.R.

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[28] The Phase I Rule defined facilities meeting either of the first two tests of section 122.29(b) as "greenfield" facilities and

§ 122.29(b) (emphasis added). Section 122.29(b) provides further that, in determining whether a facility is "substantially independent" of an existing source, the director should consider "the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source." 40 C.F.R. § 122.29(b)(iii).

In determining whether a new construction qualifies as a "new facility" for purposes of the Phase I Rule, therefore, the permitting authority must perform a two-part, but not necessarily sequential, analysis. It must determine whether the construction uses a new cooling water intake structure or an existing structure whose capacity has been increased. The permitting authority must also determine whether the new construction qualifies as a "new source." Failure to meet either part of this analysis precludes the new construction from qualifying as a "new facility," and thus from falling under the Phase I Rule's purview.

The Phase I Rule stated that "new facilities" meeting the foregoing requirements include a "stand-alone" facility, which the Phase I Rule defined as "a new, separate facility that is

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facilities meeting the third test as "stand alone" facilities. 40 C.F.R. § 125.83 ("A greenfield facility is a facility that is constructed at a site at which no other source is located, or that totally replaces the process or production equipment at an existing facility. A stand-alone facility . . . is constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site.").

constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site." *Id.* § 125.83. This is because such a facility, by definition, essentially qualifies as a "new source." *Compare id. with* § 122.29 (defining "new source" as including a facility that undertakes "processes . . . substantially independent of an existing source at the same site"). The Phase I Rule clarified, however, that "new facility" does not include "new units that are added to a facility for purposes of the same general industrial operation (for example, a new peaking unit at an electrical generating station)." *Id.* § 125.83. This is presumably because such units do not qualify as "new sources" in that they are not substantially independent of existing sources. *See id.* § 122.29(b)(1)(iii) (setting forth the factors to be considered in determining substantial independence, including "the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source"). The Phase I Rule thus appears to have left regulation over the following to a subsequent rulemaking phase: (1) new stand-alone facilities that use existing intake structures whose design capacity is not increased and (2) new units that are added to a facility for purposes of the same general industrial operation even if they require either an increase in the intake structure design capacity or the construction of a new cooling water intake structure altogether. *Id.*[29]

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[29] A facility would clearly find it advantageous to classify a new construction on its grounds as one added for purposes of

The Phase II Rule defines "existing facility" as any facility whose construction commenced on or before January 17, 2002, "and any modification of, or any addition of a unit at such a facility that does not meet the definition of a new facility at § 125.83." *Id.* § 125.93. Thus, from this definition, it appears that new stand-alone facilities that use existing, unmodified intake structures and new units added to a facility for purposes of the same industrial operation, regardless of their impact on the facility's cooling water intake structure, (i.e., the two kinds of new constructions left unregulated by the Phase I Rule) are considered "existing facilities" and governed by the Phase II Rule.

The parties' dispute concerns statements in the preamble to the Phase II Rule that purportedly narrow, by way of interpretation, the Phase I Rule's definition of "new facility"[30] without the required

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the same general industrial operation rather than as a stand-alone facility. A stand-alone facility is treated as an existing facility only if it uses an existing intake structure whose capacity is not increased; a "new unit," by contrast, is treated as part of an existing facility even if it requires the construction of a new intake structure or an increase in an existing intake structure's capacity.

[30] We find no merit to the EPA's argument that the state and environmental petitioners here are ostensibly challenging the Phase II Rule's definition of "existing facility" but are actually seeking review of the meaning of "new facility" under the Phase I Rule – for which their claim would be time-barred. Though the EPA claims that "[n]othing in the Phase II Rule altered or amended the definition of 'new facility,'" it is clear from the discussion above that the preamble to the Phase II Rule eliminates without notice or comment the analysis the Phase I Rule had required.

procedures of notice and comment. In the preamble to the Phase II Rule, the EPA states that "the Phase I [R]ule treated almost all changes to existing facilities for purposes of the same industrial operation as existing facilities." 69 Fed. Reg. at 41,579. The preamble then appears to distinguish stand-alone facilities from new units that are part of the same industrial operation, thereby defining the latter as existing facilities without reference to the definition of "new source" or the "substantial independence" test of 40 C.F.R. § 122.29. *Id.* at 41,579 n.2a. The preamble states that the "substantial independence" test does not apply where there is an addition to an existing facility for purposes of the same industrial operation, such as the "addition of new generating units at the same site" as an existing facility, *id.* at 41,579, because such additions "are categorically treated as 'existing facilities' regardless of any other considerations unless they completely replace an existing facility and its cooling water design intake capacity is increased," *id.* at 41,579 n.2a. These comments are contrary to the plain meaning of the relevant portion of the Phase I Rule.

The Phase I Rule unambiguously stated that "new facility" means any structure that is a "new source," as defined by 40 C.F.R. § 122.29, subject to certain other requirements. Under this provision, a source is considered "new" if, *inter alia*, "[i]ts processes are substantially independent of an existing source at the same site." 40 C.F.R. § 122.29(b)(1)(iii). A permitting authority could not classify a source constructed at the site of an existing source as new or existing for purposes of the Phase I

Rule, therefore, without reference to the "substantial independence" test. It is plain, then, that the Phase I Rule distinguished between "stand-alone" facilities and "new units," where the new construction is not built at an empty site and does not totally replace an existing source, by reference to the definition of a "new source." A stand-alone facility is "substantially independent" of an existing facility, and therefore a new source; a new unit that is part of the same industrial operation as an existing facility is not substantially independent of an existing facility, and therefore not a new source. It is impossible to determine which classification applies to a particular construction under the Phase I Rule without referring to the definition of "new source," i.e., whether it satisfies the "substantial independence" test. Put differently, the touchstone of the definition of "new facility" in the Phase I Rule is whether a source is a "new source." The Phase I Rule's plain terms thus indicate that a unit that is "substantially independent" of an existing facility is not "part of the same general industrial operation" as the existing facility. Any elimination of the "substantial independence" inquiry, therefore, strikes at the heart of the Phase I Rule and its classification of what facilities are subject to its requirements.

The EPA claims that the Phase II Rule has in no way eliminated the "substantial independence" test and that the Rule's preamble merely makes clear that the fifth sentence in section 125.83 exempts "new units" from regulation under the Phase I Rule. This argument fails because the Phase I Rule provides no way to distinguish between stand-alone facilities and new units where the construction

is built on a site where a source is already located and does not totally replace the existing source except by reference to the "substantial independence" test, i.e., without assessing the factors set forth at 40 C.F.R. § 122.29(b)(1)(iii) in order to determine whether the source is new or existing. Just as "stand-alone facility" has no intrinsic meaning, neither does "new unit." The Phase I Rule defines each by reference to the "substantial independence" test of section 122.29(b). Thus, while an existing facility can be repowered with new generating units and remain an "existing facility" for regulatory purposes under section 316(b), the determination can only be made by reference to whether a particular new generating unit is a stand-alone facility or a new unit that is part of the same general industrial operation as an existing facility. In fact, a permitting authority must first determine whether a source is "new" within the meaning of 40 C.F.R. § 122.29(b) before it can conclude that the source is a stand-alone facility or a new unit added to an existing facility for purposes of the same general industrial operation.

Because the Phase I Rule was not ambiguous, we do not owe deference to the Agency's interpretation of the Phase I Rule in the preamble to the Phase II Rule. *See Fowlkes*, 432 F.3d at 97; *Pfizer*, 735 F.2d at 1509. By permitting the Agency to determine that a new construction is not subject to the Phase II Rule without any definitional guidance and in contravention of the Phase I Rule, the EPA has expanded the scope of what may be classified as a "new unit" while narrowing the Phase I definition of "stand-alone" facility. Moreover, by

including a potentially expansive definition of "new unit" in the preamble to the Phase II Rule, the EPA has interpretively modified the definitions that appeared in the Phase I Rule without providing interested parties an opportunity for notice and comment.

Accordingly, we direct the EPA on remand to adhere to the definitions set forth in the Phase I Rule, *see Reuters*, 781 F.2d at 950-52, or to amend those definitions following notice and comment, *see Alaska Prof'l Hunters*, 177 F.3d at 1034.

IV. The Industry Petitioners

A. Applicability of Section 316(b) to Existing Facilities

Entergy argues that the EPA lacks authority to apply CWA section 316(b) to existing, as opposed to new, facilities. We disagree and conclude that, at the very least, the EPA permissibly interpreted the statute to cover existing facilities and that its interpretation is therefore entitled to deference under *Chevron*.

Entergy's argument turns primarily on the statutory language that the best technology available be reflected in the "location, design, construction, and capacity of cooling water intake structures" – a collection of words Entergy contends indicates Congress's intent to regulate only new

facilities.[31] Entergy argues further that the EPA has authority to approve cooling water intake structures only before construction and cannot regulate these structures through the NPDES permits issued pursuant to CWA section 402(a)(1), 33 U.S.C. § 1342(a)(1), which allows the Administrator to "issue a permit for the discharge of any pollutant," but not, in Entergy's view, to cover existing intake structures.

The EPA emphasizes that section 316(b) cross-references section 301, which applies to existing facilities, and that the Agency's historical practice of applying section 316(b) to existing facilities effectuates Congress's objectives in enacting the CWA. The EPA contends that Congress's link between effluent limitations established pursuant to section 301 and BTA under

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[31] Entergy cites a number of federal statutory and regulatory provisions using similar words and argues that each provision applies only in the pre-construction context. The environmental petitioners contend that the provisions upon which Entergy relies explicitly limit their application to new facilities and that, as a result, the words "location, design, construction and capacity," standing alone, do not apply solely to new facilities; otherwise, the environmental petitioners' argument goes, there would be no need to limit expressly the provisions' applicability to new facilities. For example, 49 U.S.C. § 60103, which governs safety standards for liquefied natural gas pipelines, by its express terms does not apply to certain existing facilities. 49 U.S.C. § 60103(c) ("Except as provided in paragraph (2) of this subsection, a design, location, installation, construction, initial inspection, or initial testing standard prescribed under this chapter after March 1, 1978, does not apply to an existing liquefied natural gas pipeline facility . . . ."). These are additional reasons for the holding discussed in this opinion

section 316(b) indicates an intent to regulate cooling water intake structures at existing facilities. The EPA thus argues that the intake-structure standard is to be applied whenever an intake structure is present at a point source of pollutant discharge, whether that point source is new or existing. As to Entergy's argument concerning the ability to assess intake structures during NPDES permitting proceedings, the EPA argues that its decision to implement the Phase II requirements through NPDES permits has a strong textual basis. It notes that section 402 provides for the issuance of "a permit for the discharge of any pollutant" so long as the discharge meets "all applicable requirements under sections 1311 . . . [and] 1316," sections 301 and 306 of the CWA respectively. CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1). EPA contends that the Phase II requirements are "requirements under sections 1311 . . . [and] 1316" and therefore that cooling water intake structures may be regulated via permits issued pursuant to section 402.

The EPA has the better of both arguments. As to whether section 316(b) applies to existing facilities, we find Entergy's textual argument, while superficially appealing, ultimately to be unavailing. Nothing in section 316(b) indicates that because it applies to the "location, design, construction, and capacity" of a facility's cooling water intake structure, the section is therefore limited to new facilities and does not require existing facilities either to modify existing intake structures or to construct new intake structures in order to come into

compliance with the EPA's Rule.[32] In fact, given the cross-references in section 316(b) to provisions governing both new and existing facilities, the EPA's reading is far more reasonable than Entergy's. *See E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 121 (1977) ("Section 301(b) [to which section 316(b) expressly refers] defines the effluent limitations that shall be achieved by existing point sources . . . ."); *id.* at 136 (holding that "301 does authorize the [Agency] to promulgate effluent limitations for classes and categories of existing point sources"). The cross-reference to section 301 is particularly significant given that Congress, having made this explicit cross-reference, did not then limit section 316(b)'s application to new facilities – which would have been a simple task to do. At the very least, the EPA's view that section 316(b) applies to existing facilities is a reasonable interpretation of the statute, and we therefore accord it deference. *See Chevron*, 467 U.S. at 842-43.

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[32] We are not persuaded by Entergy's selective definitions of the terms "location, design, construction, and capacity." While we agree that words in a statute are to be accorded "their ordinary, contemporary, common meaning," *Harris v. Sullivan*, 968 F.2d 263, 265 (2d Cir. 1992), it is clear that the EPA's interpretation of the statute does not deviate from this requirement. *See, e.g.*, Black's Law Dictionary 958 (8th ed. 1999) ("[L]ocation" is "[t]he specific place or position of a person or thing."); *id.* at 478 ("[D]esign" means "a plan or scheme" or "[t]he pattern or configuration of elements in something."); *id.* at 332 ("[C]onstruction" is "[t]he act of building," but also "the thing so built."); Webster's Third New Int'l Dictionary 330 (1986) ("[C]apacity" means "the power or ability to hold, receive or accommodate" and "a containing space: a measure of content for gas, liquid, or solid."). Nothing in the above definitions suggests the EPA could not have reasonably interpreted such words to include existing facilities.

Entergy's argument concerning the permitting process presents a closer question, but it is ultimately not persuasive and does not undermine our conclusion that section 316(b), on its face, applies to existing facilities. The textual basis for the EPA to regulate cooling water intake structures during the periodic permitting process applicable to the discharge of pollutants is not immediately apparent. Section 402 conditions the issuance of a permit on the circumstance that a "*discharge* will meet . . . all applicable requirements under sections 1311 . . [and] 1316." CWA § 402(a)(1), 33 U.S.C. § 1342(a)(1) (emphasis added). While the Phase II requirements are "requirements" under sections 301 and 306, they do not apply to the discharge of pollutants, and section 402 says nothing about conditioning a permit on compliance with *other* requirements of sections 301 and 306, i.e., requirements not relating to the discharge of pollutants. Despite this textual hiccup, the EPA's decision to use the NPDES process to enforce section 316(b) is not unreasonable. Insofar as the provision applies to existing facilities – and the cross-reference in section 316(b) to section 301 provides a clear textual basis for that conclusion – the EPA could enforce it only through some permit process following the issuance of an initial construction permit. Moreover, the structure of section 316(b) supports the view that its requirements are to be enforced through the same process used to enforce the effluent limitations of sections 301 and 306. As noted, the statute requires that any standard established by the EPA to govern the discharge of pollutants from existing facilities must also regulate cooling water intake structures. CWA § 316(b), 33

U.S.C. § 1326(b) (providing that "[a]ny standard established pursuant to section 1311 . . . or section 1316" shall also regulate the cooling water intake structures of point sources). In light of this language, it is at least reasonable to conclude that Congress intended the requirements of section 316(b) to be part and parcel of any regulation of, and therefore any permit issuance relating to, the discharge of pollutants. *See Riverkeeper I*, 358 F.3d at 185-86. It is a fair conclusion that section 402 implicitly requires permitting authorities to ensure compliance with section 316(b) as a permit condition. *See U.S. Steel Corp. v. Train*, 556 F.2d 822, 850 (7th Cir. 1977) ("[Section] 402(a)(1) implicitly requires the Administrator to insure compliance with § 316(b) as one of the permit conditions."), *overruled on other grounds by City of West Chicago, Ill. v. U.S. Nuclear Regulatory Comm'n*, 701 F.2d 632, 644 (7th Cir. 1983) (abandoning the view that 5 U.S.C. § 558(c) independently provides that formal adjudicatory hearings must be held when requested by a license applicant under CWA § 402). Section 402 thus does not undermine the deference to which the Agency's interpretation of section 316(b) is entitled under *Chevron*.

Because section 316(b) plainly applies to existing facilities and Congress intended the requirements of section 316(b) to apply in tandem with the effluent limitations established pursuant to sections 301 and 306, we conclude that the EPA may regulate cooling water intake structures via the NPDES permit process. Otherwise, Congress's intent to regulate the intake structures of existing facilities

could not be effectuated.[33] Accordingly, we reject this aspect of Entergy's challenge.

B. Definition of "Adverse Environmental Impact"

In the Phase II Rule, as in the Phase I Rule, the EPA has interpreted the statutory directive of section 316(b) to minimize "adverse environmental

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[33] Entergy also contends that section 316(b) cannot be enforced via a citizen suit pursuant to section 505(a)(1), 33 U.S.C. § 1365(a)(1), because that provision covers only violations of "an effluent standard or limitation" or "an order issued by the Administrator or a State with respect to such a standard or limitation," and that the statute therefore applies only in the pre-construction context. Because the case before us is not a citizen suit, we are not directly presented with the question of whether a citizen can sue to enforce section 316(b) and do not decide the question. We are not, however, persuaded by Entergy's argument. The citizen suit provision states that a citizen may commence a suit against any person who is alleged to be in violation of "an effluent standard or limitation under this chapter." CWA § 505(a)(1), 33 U.S.C. § 1365(a)(1). Viewed in light of this language alone, it is difficult to characterize a violation of regulations promulgated pursuant to section 316(b) as a violation of an "effluent standard or limitation." The statute, however, defines "effluent standard or limitation" to include "an effluent limitation or other limitation under section 1311" and a "standard of performance under section 1316." CWA § 505(f), 33 U.S.C. § 1365(f). Arguably, therefore, a limitation established pursuant to section 316(b) is an "other limitation under section 1311" and a "standard of performance under section 1316," given the cross-reference to sections 301 and 306 in section 316(b), and thus falls within the scope of the citizen suit provision. While we do not decide the question here, we do not read the citizen suit provision to undermine the deference we accord the EPA's reasonable interpretation pursuant to *Chevron* that section 316(b) applies to existing facilities.

impact" ("AEI") to require the reduction of "the number of aquatic organisms lost as a result of water withdrawals associated" with cooling water intake structures. 69 Fed. Reg. at 41,586. This interpretation reflects the fact that section 316(b) is a somewhat unusual provision of the CWA in that it governs the environmental effects of large scale withdrawals from waters of the United States rather than the release of pollutants into receiving water. As did the industry petitioners in *Riverkeeper I*, PSEG argues that the EPA arbitrarily defined AEI to include any loss of or harm to aquatic organisms due to impingement mortality and entrainment rather than only more severe "population-level effects." It contends that the EPA has historically focused on the "population dynamics" of aquatic organisms and the fact that many of these organisms are "density dependent," i.e., they produce large numbers of offspring, only a few of which survive to adulthood.[34] On the theory that the "vast majority" of entrained organisms would have died of natural causes in any event, PSEG argues that reduction of impingement mortality and entrainment will have only a marginal positive environmental impact.[35]

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[34] PSEG relies on the Draft Guidance for Evaluating the Adverse Impact of Cooling Water Intake Structures on the Aquatic Environment, prepared by the EPA in 1977. While the EPA indicated in this document that "[a]dverse environmental impacts occur whenever there will be entrainment or impingement damage as a result of the operation of a specific cooling water intake structure," PSEG focuses on the Agency's statement that the "critical question" is "the magnitude of any adverse impact."

[35] The environmental petitioners contend that PSEG has missed the mark here entirely. They argue that when

PSEG contends that because the Agency has changed course from its longstanding interpretation of AEI without giving a clear and reasoned justification for its decision, the EPA's Rule is entitled to less deference than it otherwise would receive. PSEG also argues that the Phase II Rule's exclusion from the entrainment-reduction requirement of facilities withdrawing small amounts of water, facilities withdrawing water from lakes other than the Great Lakes, and facilities that have a small capacity utilization rate undercuts the EPA's determination that impingement mortality and entrainment are *per se* adverse environmental impacts. We are not persuaded by PSEG's arguments.

We agree with the EPA that the Phase II Rule is based on substantially the same record evidence of impingement mortality and entrainment relied upon in promulgating the Phase I Rule and that we rejected substantially the same arguments advanced here by the industry petitioners in *Riverkeeper I*, 358

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organisms die of natural causes they remain available as food for top predators, but that when organisms are entrained, and potentially disintegrated, they are consumed by lower organisms. They argue also that entrained organisms are not available to consume organisms lower on the food chain. The environmental petitioners thus contend that one of the primary adverse environmental impacts of impingement mortality and entrainment is their effect on the ecosystem as a whole by disrupting the food chain. The EPA discussed these and other environmental impacts attributable to impingement mortality and entrainment in the preamble to the Phase II Rule, concluding that "[d]ecreased numbers of aquatic organisms can disrupt aquatic food webs and alter species composition and overall levels of biodiversity." 69 Fed. Reg. at 41,586.

F.3d at 197 ("The EPA considered all of the factors that UWAG now raises, and we are inclined to defer to the EPA's judgment of how best to define and minimize 'adverse environmental impact.'" (internal footnote omitted)). *Riverkeeper I* thus controls this issue.

In *Riverkeeper I*, we rejected the arguments that some species are nuisances and require eradication, that other species respond to population losses by increasing their reproduction, and that removing large numbers of aquatic organisms from waterbodies is not in and of itself an adverse impact. 358 F.3d at 196. We specifically rejected the view that "the EPA should only have sought to regulate impingement and entrainment where they have deleterious effects on the overall fish and shellfish populations in the ecosystem, which can only be determined through a case-by-case, site-specific regulatory regime." *Id.* We emphasized that "the EPA's focus on the number of organisms killed or injured by cooling water intake structures is eminently reasonable." *Id.* We reiterated that Congress had "rejected a regulatory approach that relies on water quality standards," analogizing the argument pressed there as urging what is essentially a water quality standard that focuses on fish populations and consequential environmental harm.[36] *Id.* at 196-97. Given that the record evidence

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[36] We make an additional observation here, which we cited in *Riverkeeper I* as a reason for rejecting restoration measures as impermissible under the statute. It is significant that in section 316(a), which governs thermal discharges, Congress permits the EPA to vary the standard applicable to a point source "by considering the particular receiving

on this issue has not changed in any meaningful way since the Phase I rulemaking, we are both persuaded and bound by our statements on this issue in *Riverkeeper I*.

Were we considering the issue in the first instance, however, we would be inclined to defer to the EPA's judgment in any event. The EPA explained that it has set "performance standards for minimizing adverse environmental impact based on a relatively easy to measure and certain metric – reduction of impingement mortality and entrainment." 69 Fed. Reg. at 41,600. It explained further that it chose this approach "because impingement and entrainment are primary, harmful environmental effects that can be reduced through the use of specific technologies" and stated that "where other impacts at the population, community, and ecosystem levels exist, these will also be reduced by reducing impingement and mortality." *Id.* We see no reason to second-guess this judgment, given the Agency's consideration of the various environmental consequences of cooling water intake structures. *See*

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waterbody's capacity to dissipate the heat and preserve a 'balanced, indigenous' wildlife population." 358 F.3d at 190. It is also significant that Congress "did not include that [water quality or population level] approach (or make any reference to it) in the very next subsection," *id.*, since "where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." *Id.* (quoting *Bates v. United States*, 522 U.S. 23, 29-30 (1997) (internal quotation marks omitted)). The statutory structure thus indicates that Congress did not intend to limit "adverse environmental impact" in section 316(b) to population-level effects.

Nat'l Wildlife Fed'n, 286 F.3d at 570 (noting that courts afford the EPA considerable discretion to weigh and balance various factors in determining how to establish performance standards).[37]

C. Zero Entrainment Survival Assumption

The Phase II Rule requires a reduction of impingement *mortality*, but a reduction of entrainment *generally*. *See* 40 C.F.R. § 125.94(b). The industry petitioners contend that the EPA improperly presumed that all entrained organisms are killed. They argue that the Rule's assumption that no organisms survive entrainment is contrary to the evidence which, in their view, indicates a survival rate of significantly more than zero. We conclude that in light of uncertain record evidence, the EPA acted within its discretion in assuming zero entrainment survival.

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[37] We also find no merit in PSEG's claim that the final Rule gave no notice of the supposed change in the EPA's view of "adverse environmental impact." Not only did the proposed Rule seek comment on several competing definitions, one of which referred to gauging such impact in part by examination of the "absolute damage" wrought by impingement and entrainment, but in which the EPA noted that "there will be adverse environmental impact whenever there is entrainment or impingement 'damage' as a result of a cooling water intake structure." 67 Fed. Reg. at 17,162. While the EPA did not ultimately adopt any of the definitions it noticed, it is clear that PSEG was "fairly apprise[d]" that the EPA was considering an approach to AEI that looked to entrainment and impingement at the individual level. *Nat'l Black Media Coalition*, 791 F.2d at 1022.

The EPA explained in the preamble to the Phase II Rule that it assumed zero percent entrainment survival because it "does not have sufficient data to establish performance standards based on entrainment survival for the technologies used as the basis for today's rule." 69 Fed. Reg. at 41,620. It explained further that it "believes the current state of knowledge does not support reliable predictions of entrainment survival that would provide a defensible estimate for entrainment survival above zero at a national level." *Id.* It also stated that the performance standard would likely have been higher had it incorporated entrainment survival into its conclusions. *Id.* While impingement mortality can be readily quantified, the EPA contends, entrainment mortality cannot because many entrained organisms are small, fragile, and prone to disintegrate during entrainment. The EPA also contends that death from entrainment sometimes occurs immediately but other times only after an organism is discharged back into the waterbody. In view of these factors, the EPA claims that it reasonably concluded that the available data did not support an estimate of entrainment survival at the national level.

None of the peer reviewers accepted the EPA's assumption of zero percent survival. For instance, peer reviewer Dr. Mark Bain was "not convinced by the arguments presented that fish do not survive entrainment in significant numbers" and concluded that there is "very strong evidence that entrainment survival is not zero." Another peer reviewer, Dr. Charles Hocutt, concluded that the EPA's assumption is based on inference and innuendo and

does not statistically refute opposing views. Although peer reviewer Dr. Greg Garman stated that the study submitted by the power industry was "very clearly biased" and "too seriously flawed to provide a serious challenge to the EPA position," he also noted that "EPA's position is only slightly more defensible" given the lack of rigorous statistical analyses.

No peer reviewer, however, expressed the belief that reliable national statistics on entrainment survival exist. Hocutt found "it difficult for the layman and professional alike to draw confident conclusions without a detailed analysis" of the evidence, and Garman suspected a lack of sufficient data "to conduct a definitive and statistically valid test of the EPA zero survival assumption." While these comments do not, on balance, support the EPA's assumption, neither do they reflect any meaningful agreement on the incidence of entrainment survival. Given the statutory directive to set national standards and the well-documented uncertainty in the entrainment data, the EPA was well within its authority to determine that it could not provide a reasonable estimate of entrainment survival on a national basis. Judicial review is considerably deferential when "the agency's decision rests on an evaluation of complex scientific data within the agency's technical expertise." *Texas Oil & Gas Ass'n*, 161 F.3d at 934; *City of Waukesha v. EPA*, 320 F.3d 228, 247 (D.C. Cir. 2003) (stating that an agency is entitled to "an extreme degree of deference . . . when it is evaluating scientific data within its technical expertise" (citation and internal quotation marks omitted)). Moreover, "it is within EPA's

discretion to decide that in the wake of uncertainty, it would be better to give the values a conservative bent rather than err on the other side." *Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 993 (D.C. Cir. 1997). Indeed, one peer reviewer expressly noted that the EPA had adopted a "conservative approach" by its assumption of zero entrainment survival in the Rule. It is thus clear that the EPA acted well within its discretion in presuming zero entrainment survival after the Agency had reviewed a substantial body of complex scientific data, and acknowledging that the evidence is inconclusive, it adopted a conservative approach.

For these reasons and those stated in *Riverkeeper I*, we therefore "defer to the EPA's judgment of how best to define and minimize 'adverse environmental impact.'" 358 F.3d at 197.

D. Nuclear Plants

Entergy contends that the Phase II Rule fails to account for its purportedly disproportionate impacts on nuclear power plants and is therefore arbitrary and capricious. Entergy argues that nuclear facilities face unique safety concerns associated with the stable flow of cooling water to ensure safe reactor operation and shutdown. Any change in water intake or obstruction of water intake systems due to, for example, the clogging of screens, it argues further, affects nuclear power facilities in specific and serious ways. Entergy takes the position that the EPA failed to account for these issues in the Phase II Rule. We disagree because the

record demonstrates adequate consideration by the EPA of nuclear plants' particular concerns.

The EPA considered and responded to comments from nuclear facilities during the rulemaking process. Most importantly, the Agency considered whether the Rule's requirements presented any concerns relating to the safety of nuclear facilities. 69 Fed. Reg. at 41,585 (noting that the EPA had coordinated with the Nuclear Regulatory Commission to ensure that there would not be a conflict between the EPA Rule and safety requirements applicable to nuclear facilities). The EPA ultimately included in the Phase II Rule a provision that accounts for this concern by providing for a site-specific compliance alternative for nuclear facilities. This provision states that if a nuclear facility "demonstrate[s] to the [EPA] based on consultation with the Nuclear Regulatory Commission that compliance with this subpart would result in a conflict with a safety requirement established by the Commission, the [EPA] must make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict." 40 C.F.R. § 125.94(f).

We defer to the EPA's determination that this compliance alternative ensures that any safety concerns unique to nuclear facilities will prevail over application of the general Phase II requirements. *See Nat'l Wildlife Fed'n*, 286 F.3d at 570 (noting that appellate courts give an agency considerable discretion when it has weighed and balanced the appropriate factors); *BP Exploration & Oil, Inc. v.*

EPA, 66 F.3d 784, 802 (6th Cir. 1995) ("The overriding principle in our review of the Final Rule is that the agency has broad discretion to weigh all relevant factors during rulemaking. The CWA does not state what weight should be accorded to the relevant factors; rather, the Act gives EPA the discretion to make those determinations."). Moreover, we are persuaded that the generous cost-cost compliance alternative, which we remand for lack of notice but do not address on the merits, may further account for Entergy's concerns.

Accordingly, we deny the petition for review insofar as it challenges the Rule's application to nuclear facilities.

E. Independent Suppliers

The Phase II Rule provides that a large, existing facility is subject to the Rule's requirements even when it obtains cooling water from an independent supplier that is not itself a Phase II existing facility. 40 C.F.R. § 125.91(c). Put differently, a Phase II facility can purchase cooling water only from suppliers whose intake structures are in compliance with the Phase II Rule. The provision is intended to prevent circumvention of the Rule by purchasing cooling water from non-Phase II entities. UWAG argues that the EPA gave inadequate notice of the scope of this so-called third-party or independent-supplier Rule. We agree.

UWAG contends that while the Phase I Rule included an independent-supplier provision similar to the one at issue here, the parallel provision of the

Phase I Rule applies only to third-party suppliers that are not point sources, and thus do not need discharge permits and are not subject to any rule promulgated pursuant to section 316(b).[38] UWAG argues that the Rule's proposal indicated that the Phase II provision would track the language of the Phase I provision. UWAG contends, therefore, that the EPA gave inadequate notice of the more broadly phrased provision that was actually promulgated: a rule applying both to the intake structures of third-parties that are not point sources, and therefore not subject to direct regulation under section 316(b), as well as to facilities with intake structures that will be governed by the Phase III rule, which will encompass smaller power plants and other facilities. The issue is thus whether the EPA provided adequate notice that the Rule ultimately promulgated would impose Phase II requirements on Phase III facilities that supply cooling water to Phase II facilities.

As we have noted, our inquiry into whether an agency has provided adequate notice of its rulemaking as required by the APA is guided by the "logical outgrowth" test. *Nat'l Black Media Coalition*, 791 F.2d at 1022. That is, we must determine

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[38] The Phase I Rule provided that [u]se of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from waters of the United States. . . . [t]his provision is intended to prevent circumvention of these requirements by creating arrangements to receive cooling water from an entity that is not itself a point source. 40 C.F.R. § 125.81(b).

whether the Agency's notice fairly apprised interested parties of the rulemaking, *id.*, or whether the final Rule was sufficiently remote or distant from the Agency's proposal to constitute a "surprise switcheroo," *Envtl. Integrity Project*, 425 F.3d at 996.

The proposed Rule published in the Federal Register stated that "[u]se of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with an independent supplier (or multiple suppliers) of cooling water if the supplier or suppliers withdraw(s) water from waters of the United States." 67 Fed. Reg. at 17,220. The notice then stated that the provision was intended "to prevent circumvention of these requirements by creating arrangements to receive cooling water from *an entity that is not itself a point source*," *id.* (emphasis added), indicating that the provision would track the Phase I Rule's language. The initial language of the provision appearing in the proposal – defining "independent supplier" as any provider that withdraws water from waters of the United States – is virtually identical to the language in the final Rule.[39] The final Rule, however, states that it "is intended to prevent circumvention of these requirements by creating arrangements to

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[39] The final Rule provides that "[u]se of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the supplier withdraws water from waters of the United States but is not itself a Phase II existing facility . . . . This provision is intended to prevent circumvention of the requirements by creating arrangements to receive cooling water from an entity that is not itself a Phase II existing facility." 40 C.F.R. § 125.91(c).

receive cooling water from *an entity that is not itself a Phase II existing facility*." 40 C.F.R. § 125.91(c) (emphasis added). This difference, while small, is not insignificant. As noted, under the proposed Rule, Phase II facilities could purchase cooling water from facilities complying with the Phase I, II, or III requirements. Under the final Rule, by contrast, Phase II facilities can purchase cooling water only from facilities complying with the Phase II Rule. The proposal therefore apprised affected parties of the general subject, but not the scope, of the Rule ultimately promulgated.

Interested parties were thus given notice that the EPA sought to prevent circumvention of its rules and an opportunity to comment on this general policy, but could not have anticipated the final Rule's scope. Indeed, while the final provision has roots in the proposal, it clearly reaches further than the proposed provision and even the more stringent Phase I Rule. Affected parties would therefore have had no reason to anticipate the Agency's final course in light of the initial notice. Because the EPA provided inadequate notice of the scope of the Phase II Rule's independent-supplier provision, we conclude that the Rule ultimately promulgated is not a "logical outgrowth" of the proposed Rule. *Nat'l Black Media Coalition*, 791 F.2d at 1022.

Our conclusion rests in large part on the similarity between the Phase I Rule's independent-supplier provision and the proposed Phase II Rule's parallel provision. Given that the requirements under the Phase I Rule are more stringent than those imposed under the Phase II Rule, the proposal

provided no notice that the Phase II Rule's independent-supplier provision would be *more* stringent than the Phase I Rule's provision. We therefore remand this aspect of the Rule.

F. Definition of "Great Lakes"

The entrainment performance standard of 40 C.F.R. § 125.94(b)(2) applies to facilities that use cooling water "withdrawn from . . . one of the Great Lakes." 40 C.F.R. § 125.49(b)(2)(ii)(A). "Great Lakes," however, is not defined in the Rule. An affidavit of UWAG's counsel states that UWAG members

> have been told by state regulators that they have been told by EPA Headquarters that EPA would apply the Great Lakes national performance standards regarding impingement and entrainment to the cooling water intake structures located in the Great Lakes connecting channels or in waterways with open fish passage to a Great Lake and within 30 miles from a Great Lake.

UWAG argues that interested parties were given no notice of this interpretation of the Phase II Rule or opportunity to comment on it and that the interpretation has no record support. UWAG also remarks that the EPA mentioned in the preamble to the Rule that in assessing the national environmental benefits of its final Phase II Rule, it had evaluated the benefits in seven study regions. The EPA defined the Great Lakes *region* for that purpose as follows:

> The Great Lakes region includes all facilities in scope of the Phase II rule that withdraw water from Lakes Ontario, Erie, Michigan, Huron, and Superior or are located on a waterway with open fish passage to a Great Lake and within 30 miles of the lake.

69 Fed. Reg. at 41,655. UWAG contends that the EPA never indicated that this definition would apply to § 125.94(b)(2) and seeks either a ruling that "Great Lakes" has its ordinary meaning or a remand for an express definition of what the term means.

Notwithstanding UWAG's proffer that the EPA has informally interpreted "Great Lakes," the Rule itself does not define what is encompassed by the term, and UWAG has provided no documentary evidence that the EPA has issued a formal and binding definition or even applied a particular definition in a permitting proceeding. There is, therefore, no final agency action for us to review. We agree with the holding of the Seventh Circuit in *American Paper Institute, Inc. v. Environmental Protection Agency*, that in the absence of a formal and binding rule or some other final agency action, judicial review is not available at this time. 882 F.2d 287, 289 (7th Cir. 1989). We therefore dismiss for lack of jurisdiction so much of the petition for review as challenges the purported definition of "Great Lakes."

G. Preemptive Preservation of Issues

UWAG has purported to "preserve" the right to raise new challenges to the Phase II Rule if we remand significant aspects of it to the EPA because UWAG views the Rule as an integrated whole. If certain aspects of the Rule are remanded, UWAG suggests, previously unobjectionable provisions may become, in its view, unacceptable. We are not sure what challenges UWAG seeks to preserve. Of course, UWAG will have the right to challenge any rule the EPA may promulgate on remand through a new petition for review. *See* 33 U.S.C. § 1369(b). Insofar as UWAG seeks to raise further challenges following the issuance of our ruling but before the EPA acts on remand, however, it waived those challenges by failing to raise them in the briefs it has already submitted to this Court. *See Norton v. Sam's Club*, 145 F.3d 114, 117 (2d Cir. 1998) (noting that issues not argued in a party's briefs are considered waived). We thus reject UWAG's claim to have preserved the right to raise new challenges to the Rule currently before us on this petition for review.

CONCLUSION

For the foregoing reasons, the state and environmental petitioners' petitions are granted in part and denied in part, and the industry petitioners' petitions granted in part, denied in part, and dismissed in part for lack of jurisdiction. We remand to the EPA the provision establishing BTA so that it may provide either a reasoned explanation of its decision or a new determination of BTA based on permissible considerations. We further remand the

site-specific cost-cost variance and the TIOP provision because the cost-cost variance and subpart (d)(2) of the TIOP provision provided inadequate notice and both depend on the BTA determination, which we remand today.

We remand as based on impermissible constructions of the statute those provisions that (1) set performance standards as ranges without requiring facilities to achieve the greatest reduction of adverse impacts they can; (2) allow compliance through restoration measures; and (3) authorize a site-specific cost-benefit variance as impermissible under the statute. We further remand for notice and comment the independent suppliers provision. We also direct the EPA on remand to adhere to the definition of "new facility" set forth in the Phase I Rule or to amend that definition by rulemaking subject to notice and comment. Finally, we dismiss for lack of jurisdiction so much of the petitions as challenges the purported definition of "Great Lakes" and deny as moot the motions to strike certain material from the record and to supplement the record with other material.

[ENTERED: JULY 5, 2007]

UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT
THURGOOD MARSHALL U.S. COURTHOUSE
40 FOLEY SQUARE
NEW YORK 10007

Catherine O'Hagan Wolfe
CLERK

Date: Jul 05 2007

Docket	**04-6692-ag**
Short Title:	Riverkeeper, Inc. v. EPA
Agency Number:	ow-02-0049
Agency:	Environmental Protection Agency

At a stated term of the United States Court of Appeals for the Second Circuit, held at the Daniel Patrick Moynihan United States Courthouse, 500 Pearl Street, in the City of New York, on the 5 day of July two thousand seven.

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Riverkeeper, Inc., Natural Resources Defense Council, Waterkeeper Alliance, Soundkeeper, Inc., Scenic Hudson, Inc., Save The Bay-People for Narragansett Bay, Friends of Casco Bay, American Littoral Society, Delaware Riverkeeper Network, Hackensack Riverkeeper, Inc., New York/New Jersey Baykeeper, Santa Monica Baykeeper, San Diego Baykeeper, California Coastkeeper, Columbia Riverkeeper, Conservation Law Foundation,

Surfrider Foundation, State of Rhode Island, State of Connecticut, States of Delaware, Commonwealth of Massachusetts, State of New Jersey, State of New York, Appalachian Power Company, Illinois Energy Association, Utility Water Act Group, PSEG Fossil LLC, PSEG Nuclear LLC, Entergy Corporation,

Petitioners,

v.

United States Environmental Protection Agency, Stephen L. Johnson, in his official capacity as Administrator of the United States Environmental Protection Agency,

Respondents.

A petition for panel rehearing and a petition for rehearing en banc having been filed herein by the petitioners Entergy Corp. Utility Water Act Group, PSEG Fossil LLC., and PSEG Nuclear LLC. Upon consideration by the panel that decided the appeal, it is Ordered that said petition for rehearing is **DENIED**.

It is further noted that the petition for rehearing en banc has been transmitted to the judges for the court in regular active service and to any other judge that heard the appeal and that no such judge has requested that a vote be taken thereon.

For the Court,
Catherine O'Hagan Wolfe, Clerk
By: /s/
Motion Staff Attorney

Statutes

33 U.S.C. § 1251(a) [Clean Water Act § 101].

Congressional declaration of goals and policy

(a) Restoration and maintenance of chemical, physical and biological integrity of Nation's waters; national goals for achievement of objective

The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this chapter—

(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;

(3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;

(4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;

(5) it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State;

(6) it is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans; and

(7) it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this chapter to be met through the control of both point and nonpoint sources of pollution.

33 U.S.C. § 1311 [Clean Water Act § 301].

Effluent limitations

(a) Illegality of pollutant discharges except in compliance with law

Except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344 of this title, the discharge of any pollutant by any person shall be unlawful.

(b) Timetable for achievement of objectives

In order to carry out the objective of this chapter there shall be achieved -

(1)(A) not later than July 1, 1977, effluent limitations for point sources, other than publicly owned treatment works,

(i) which shall require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 1314(b) of this title, or

(ii) in the case of a discharge into a publicly owned treatment works which meets the requirements of subparagraph (B) of this paragraph, which shall require compliance with any applicable pretreatment requirements and any requirements under section 1317 of this title; and

(B) for publicly owned treatment works in existence on July 1, 1977, or approved pursuant to section 1283 of this title prior to June 30, 1974 (for which construction must be completed within four years of approval), effluent limitations based upon secondary treatment as defined by the Administrator pursuant to section 1314(d)(1) of this title; or,

(C) not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title) or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this chapter.

(2)(A) for pollutants identified in subparagraphs (C), (D), and (F) of this paragraph, effluent limitations for categories and classes of point sources, other than publicly owned treatment works, which

(i) shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 1314(b)(2) of this title, which such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him (including information developed pursuant to section 1325 of this title), that such elimination is technologically and economically achievable for a category or class of point sources as determined in accordance with regulations issued by the Administrator pursuant to section 1314(b)(2) of this title, or

(ii) in the case of the introduction of a pollutant into a publicly owned treatment works which meets the requirements of subparagraph (B) of this paragraph, shall require compliance with any applicable pretreatment requirements and any other requirement under section 1317 of this title;

(B) Repealed. Pub. L. 97-117, Sec. 21(b), Dec. 29, 1981, 95 Stat. 1632.

(C) with respect to all toxic pollutants referred to in table 1 of Committee Print Numbered 95-30 of the Committee on Public Works and Transportation of the House of Representatives compliance with effluent limitations in accordance with subparagraph (A) of this paragraph as expeditiously as practicable but in no case later than three years after the date such limitations are promulgated under section 1314(b) of this title, and in no case later than March 31, 1989;

(D) for all toxic pollutants listed under paragraph (1) of subsection (a) of section 1317 of this title which are not referred to in subparagraph (C) of this paragraph compliance with effluent limitations in accordance with subparagraph (A) of this paragraph as expeditiously as practicable, but in no case later than three years after the date such limitations are promulgated under section 1314(b) of this title, and in no case later than March 31, 1989;

(E) as expeditiously as practicable but in no case later than three years after the date such limitations are promulgated under section 1314(b) of this title, and in no case later than March 31, 1989, compliance with effluent limitations for categories and classes of point sources, other than publicly owned treatment works, which in the case of pollutants identified pursuant to section 1314(a)(4) of this title shall require application of the best conventional pollutant control technology as determined in accordance with regulations issued by the Administrator pursuant to section 1314(b)(4) of this title; and

(F) for all pollutants (other than those subject to subparagraphs (C), (D), or (E) of this paragraph) compliance with effluent limitations in accordance with subparagraph (A) of this paragraph as expeditiously as practicable but in no case later than 3 years after the date such limitations are established, and in no case later than March 31, 1989.

(3)(A) for effluent limitations under paragraph (1)(A)(i) of this subsection promulgated after January 1, 1982, and requiring a level of control substantially greater or based on fundamentally different control technology than under permits for an industrial category issued before such date, compliance as expeditiously as practicable but in no case later than three years after the date such limitations are promulgated under section 1314(b) of this title, and in no case later than March 31, 1989; and

(B) for any effluent limitation in accordance with paragraph (1)(A)(i), (2)(A)(i), or (2)(E) of this subsection established only on the basis of section 1342(a)(1) of this title in a permit issued after February 4, 1987, compliance as expeditiously as practicable but in no case later than three years after the date such limitations are established, and in no case later than March 31, 1989.

33 U.S.C. § 1314 [Clean Water Act § 304].

Information and guidelines

(a) Criteria development and publication

(1) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) criteria for water quality accurately reflecting the latest scientific knowledge

(A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water;

(B) on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes; and

(C) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters.

(2) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within

one year after October 18, 1972 (and from time to time thereafter revise) information

(A) on the factors necessary to restore and maintain the chemical, physical, and biological integrity of all navigable waters, ground waters, waters of the contiguous zone, and the oceans;

(B) on the factors necessary for the protection and propagation of shellfish, fish, and wildlife for classes and categories of receiving waters and to allow recreational activities in and on the water; and

(C) on the measurement and classification of water quality; and

(D) for the purpose of section 1313 of this title, on and the identification of pollutants suitable for maximum daily load measurement correlated with the achievement of water quality objectives.

(3) Such criteria and information and revisions thereof shall be issued to the States and shall be published in the Federal Register and otherwise made available to the public.

(4) The Administrator shall, within 90 days after December 27, 1977, and from time to time thereafter, publish and revise as appropriate information identifying conventional pollutants, including but not limited to, pollutants classified as biological oxygen demanding, suspended solids, fecal coliform, and pH. The thermal component of any discharge shall not be identified as a conventional pollutant under this paragraph.

(5)(A) The Administrator, to the extent practicable before consideration of any request under section 1311(g) of this title and within six months after December 27, 1977, shall develop and publish information on the factors necessary for the protection of public water supplies, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and to allow recreational activities, in and on the water.

(B) The Administrator, to the extent practicable before consideration of any application under section 1311(h) of this title and within six months after December 27, 1977, shall develop and publish information on the factors necessary for the protection of public water supplies, and the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife, and to allow recreational activities, in and on the water.

(6) The Administrator shall, within three months after December 27, 1977, and annually thereafter, for purposes of section 1311(h) of this title publish and revise as appropriate information identifying each water quality standard in effect under this chapter or State law, the specific pollutants associated with such water quality standard, and the particular waters to which such water quality standard applies.

(7) Guidance to states. - The Administrator, after consultation with appropriate State agencies and on the basis of criteria and information published under paragraphs (1) and (2) of this subsection, shall develop and publish, within 9

months after February 4, 1987, guidance to the States on performing the identification required by subsection (l)(1) of this section.

(8) Information on water quality criteria. - The Administrator, after consultation with appropriate State agencies and within 2 years after February 4, 1987, shall develop and publish information on methods for establishing and measuring water quality criteria for toxic pollutants on other bases than pollutant-by-pollutant criteria, including biological monitoring and assessment methods.

(9) Revised criteria for coastal recreation waters. -

(A) In general. - Not later than 5 years after October 10, 2000, after consultation and in cooperation with appropriate Federal, State, tribal, and local officials (including local health officials), the Administrator shall publish new or revised water quality criteria for pathogens and pathogen indicators (including a revised list of testing methods, as appropriate), based on the results of the studies conducted under section 1254(v) of this title, for the purpose of protecting human health in coastal recreation waters.

(B) Reviews. - Not later than the date that is 5 years after the date of publication of water quality criteria under this paragraph, and at least once every 5 years thereafter, the Administrator shall review and, as necessary, revise the water quality criteria.

(b) Effluent limitation guidelines

For the purpose of adopting or revising effluent limitations under this chapter the Administrator shall, after consultation with appropriate Federal and State agencies and other interested persons, publish within one year of October 18, 1972, regulations, providing guidelines for effluent limitations, and, at least annually thereafter, revise, if appropriate, such regulations. Such regulations shall -

(1)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best practicable control technology currently available for classes and categories of point sources (other than publicly owned treatment works); and

(B) specify factors to be taken into account in determining the control measures and practices to be applicable to point sources (other than publicly owned treatment works) within such categories or classes. Factors relating to the assessment of best practicable control technology currently available to comply with subsection (b)(1) of section 1311 of this title shall include consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact

(including energy requirements), and such other factors as the Administrator deems appropriate;

(2)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and other alternatives for classes and categories of point sources (other than publicly owned treatment works); and

(B) specify factors to be taken into account in determining the best measures and practices available to comply with subsection (b)(2) of section 1311 of this title to be applicable to any point source (other than publicly owned treatment works) within such categories or classes. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate;

(3) identify control measures and practices available to eliminate the discharge of pollutants from categories and classes of point sources, taking into account the cost of achieving such elimination of the discharge of pollutants; and

(4)(A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best conventional pollutant control technology (including measures and practices) for classes and categories of point sources (other than publicly owned treatment works); and

(B) specify factors to be taken into account in determining the best conventional pollutant control technology measures and practices to comply with section 1311(b)(2)(E) of this title to be applicable to any point source (other than publicly owned treatment works) within such categories or classes. Factors relating to the assessment of best conventional pollutant control technology (including measures and practices) shall include consideration of the reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived, and the comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources, and shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate.

33 U.S.C. § 1316 [Clean Water Act § 306].

National standards of performance

(a) Definitions

For purposes of this section:

(1) The term "standard of performance" means a standard for the control of the discharge of pollutants which reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

(2) The term "new source" means any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance under this section which will be applicable to such source, if such standard is thereafter promulgated in accordance with this section.

(3) The term "source" means any building, structure, facility, or installation from which there is or may be the discharge of pollutants.

(4) The term "owner or operator" means any person who owns, leases, operates, controls, or supervises a source.

(5) The term "construction" means any placement, assembly, or installation of facilities or equipment (including contractual obligations to purchase such facilities or equipment) at the premises where such equipment will be used, including preparation work at such premises.

(b) Categories of sources; Federal standards of performance for new sources

(1)(A) The Administrator shall, within ninety days after October 18, 1972, publish (and from time to time thereafter shall revise) a list of categories of sources, which shall, at the minimum, include:
pulp and paper mills;

. . . .

steam electric powerplants;

. . . .

(B) As soon as practicable, but in no case more than one year, after a category of sources is included in a list under subparagraph (A) of this paragraph, the Administrator shall propose and publish regulations establishing Federal standards of performance for new sources within such category. The Administrator shall afford interested persons an opportunity for written comment on such proposed regulations. After considering such comments, he shall promulgate, within one hundred and twenty days after publication of such proposed regulations, such standards with such adjustments as he deems appropriate. The Administrator shall, from time to time, as technology and alternatives change, revise such standards following the procedure required by

this subsection for promulgation of such standards. Standards of performance, or revisions thereof, shall become effective upon promulgation. In establishing or revising Federal standards of performance for new sources under this section, the Administrator shall take into consideration the cost of achieving such effluent reduction, and any non-water quality, environmental impact and energy requirements.

(2) The Administrator may distinguish among classes, types, and sizes within categories of new sources for the purpose of establishing such standards and shall consider the type of process employed (including whether batch or continuous).

(3) The provisions of this section shall apply to any new source owned or operated by the United States.

(c) State enforcement of standards of performance

Each State may develop and submit to the Administrator a procedure under State law for applying and enforcing standards of performance for new sources located in such State. If the Administrator finds that the procedure and the law of any State require the application and enforcement of standards of performance to at least the same extent as required by this section, such State is authorized to apply and enforce such standards of performance (except with respect to new sources owned or operated by the United States).

(d) Protection from more stringent standards

Notwithstanding any other provision of this chapter, any point source the construction of which is commenced after October 18, 1972, and which is so constructed as to meet all applicable standards of performance shall not be subject to any more stringent standard of performance during a ten-year period beginning on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of section 167 or 169 (or both) of title 26 whichever period ends first.

(e) Illegality of operation of new sources in violation of applicable standards of performance

After the effective date of standards of performance promulgated under this section, it shall be unlawful for any owner or operator of any new source to operate such source in violation of any standard of performance applicable to such source.

33 U.S.C. § 1326 [Clean Water Act § 316].

Thermal discharges

(a) Effluent limitations that will assure protection and propagation of balanced, indigenous population of shellfish, fish, and wildlife

With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

(b) Cooling water intake structures

Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

(c) Period of protection from more stringent effluent limitations following discharge point source modification commenced after October 18, 1972

Notwithstanding any other provision of this chapter, any point source of a discharge having a thermal component, the modification of which point source is commenced after October 18, 1972, and which, as modified, meets effluent limitations established under section 1311 of this title or, if more stringent, effluent limitations established under section 1313 of this title and which effluent limitations will assure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in or on the water into which the discharge is made, shall not be subject to any more stringent effluent limitation with respect to the thermal component of its discharge during a ten year period beginning on the date of completion of such modification or during the period of depreciation or amortization of such facility for the purpose of section 167 or 169 (or both) of title 26, whichever period ends first.

33 U.S.C. § 1344 [Clean Water Act § 404].

Permits for dredged or fill material

(a) Discharge into navigable waters at specified disposal sites

The Secretary may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites. Not later than the fifteenth day after the date an applicant submits all the information required to complete an application for a permit under this subsection, the Secretary shall publish the notice required by this subsection.

(b) Specification for disposal sites

Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary

(1) through the application of guidelines developed by the Administrator, in conjunction with the Secretary, which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 1343(c) of this title, and

(2) in any case where such guidelines under clause (1) alone would prohibit the specification of a site, through the application additionally of the economic impact of the site on navigation and anchorage.

(c) Denial or restriction of use of defined areas as disposal sites

The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

. . . .

(e) General permits on State, regional, or nationwide basis

(1) In carrying out his functions relating to the discharge of dredged or fill material under this section, the Secretary may, after notice and opportunity for public hearing, issue general permits on a State, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only

minimal cumulative adverse effect on the environment. Any general permit issued under this subsection shall

(A) be based on the guidelines described in subsection (b)(1) of this section, and

(B) set forth the requirements and standards which shall apply to any activity authorized by such general permit.

EPA Regulations

33 C.F.R. § 320.4 General policies for evaluating permit applications.

. . . .

(r) Mitigation. \1\

(1) Mitigation is an important aspect of the review and balancing process on many Department of the Army permit applications. Consideration of mitigation will occur throughout the permit application review process and includes avoiding, minimizing, rectifying, reducing, or compensating for resource losses. Losses will be avoided to the extent practicable. Compensation may occur on-site or at an off-site location. Mitigation requirements generally fall into three categories.

\1\ This is a general statement of mitigation policy which applies to all Corps of Engineers regulatory authorities covered by these regulations (33 CFR parts 320-330). It is not a substitute for the

mitigation requirements necessary to ensure that a permit action under section 404 of the Clean Water Act complies with the section 404(b)(1) Guidelines. There is currently an interagency Working Group formed to develop guidance on implementing mitigation requirements of the Guidelines.

33 C.F.R. § 325.4 Conditioning of permits.

(a) District engineers will add special conditions to Department of the Army permits when such conditions are necessary to satisfy legal requirements or to otherwise satisfy the public interest requirement. Permit conditions will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable. . . .

(3) Such conditions may be accomplished on-site, or may be accomplished off-site for mitigation of significant losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment.

Subpart J -- Requirements Applicable to Cooling Water Intake Structures for Phase II Existing Facilities Under Section 316(b) of the Act

40 C.F.R. § 125.90 What are the purpose and scope of this subpart?

. . . .

(b) Existing facilities that are not subject to requirements under this or another subpart of this

part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.

40 C.F.R. § 125.91 What is a "Phase II Existing Facility"?

(a) An existing facility, as defined in Sec. 125.93, is a Phase II existing facility subject to this subpart if it meets each of the following criteria:

(1) It is a point source.

(2) It uses or proposes to use cooling water intake structures with a total design intake flow of 50 million gallons per day (MGD) or more to withdraw cooling water from waters of the United States;

(3) As its primary activity, the facility both generates and transmits electric power, or generates electric power but sells it to another entity for transmission; and

(4) It uses at least 25 percent of water withdrawn exclusively for cooling purposes, measured on an average annual basis.

(b) In the case of a Phase II existing facility that is co-located with a manufacturing facility, only that portion of the combined cooling water intake flow that is used by the Phase II facility to generate electricity for sale to another entity will be considered for purposes of determining whether the

50 MGD and 25 percent criteria in paragraphs (a)(2) and (4) of this section have been exceeded.

(c) Use of a cooling water intake structure includes obtaining cooling water by any sort of contract or arrangement with one or more independent suppliers of cooling water if the supplier withdraws water from waters of the United States but is not itself a Phase II existing facility, except as provided in paragraph (d) of this section. This provision is intended to prevent circumvention of these requirements by creating arrangements to receive cooling water from an entity that is not itself a Phase II existing facility.

(d) Notwithstanding paragraph (c) of this section, obtaining cooling water from a public water system or using treated effluent as cooling water does not constitute use of a cooling water intake structure for purposes of this subpart.

40 C.F.R. § 125.94 How will requirements reflecting best technology available for minimizing adverse environmental impact be established for my Phase II existing facility?

(a) *Compliance alternatives*. You must select and implement one of the following five alternatives for establishing best technology available for minimizing adverse environmental impact at your facility:

(1)(i)You may demonstrate to the Director that you have reduced, or will reduce, your flow commensurate with a closed-cycle recirculating

system. In this case, you are deemed to have met the applicable performance standards and will not be required to demonstrate further that your facility meets the impingement mortality and entrainment performance standards specified in paragraph (b) of this section. In addition, you are not subject to the requirements in Sec. Sec. 125.95, 125.96, 125.97, or 125.98. However, you may still be subject to any more stringent requirements established under paragraph (e) of this section; or

(ii) You may demonstrate to the Director that you have reduced, or will reduce, your maximum through-screen design intake velocity to 0.5 ft/s or less. In this case, you are deemed to have met the impingement mortality performance standards and will not be required to demonstrate further that your facility meets the performance standards for impingement mortality specified in paragraph (b) of this section and you are not subject to the requirements in Sec. Sec. 125.95, 125.96, 125.97, or 125.98 as they apply to impingement mortality. However, you are still subject to any applicable requirements for entrainment reduction and may still be subject to any more stringent requirements established under paragraph (e) of this section.

(2) You may demonstrate to the Director that your existing design and construction technologies, operational measures, and/or restoration measures meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section.

(3) You may demonstrate to the Director that you have selected, and will install and properly operate and maintain, design and construction technologies, operational measures, and/or restoration measures that will, in combination with any existing design and construction technologies, operational measures, and/or restoration measures, meet the performance standards specified in paragraph (b) of this section and/or the restoration requirements in paragraph (c) of this section;

(4) You may demonstrate to the Director that you have installed, or will install, and properly operate and maintain an approved design and construction technology in accordance with Sec. 125.99(a) or (b); or

(5) You may demonstrate to the Director that you have selected, installed, and are properly operating and maintaining, or will install and properly operate and maintain design and construction technologies, operational measures, and/or restoration measures that the Director has determined to be the best technology available to minimize adverse environmental impact for your facility in accordance with paragraphs (a)(5)(i) or (ii) of this section.

(i) If the Director determines that data specific to your facility demonstrate that the costs of compliance under alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards in paragraph

(b) of this section, the Director must make a site-specific determination of the best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information that the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures, and/or restoration measures that achieve an efficacy that is, in the judgment of the Director, as close as practicable to the applicable performance standards in paragraph (b) of this section, without resulting in costs that are significantly greater than the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards. The Director's site- specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because of the significantly greater costs. To calculate the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards you must:

(A) Determine which technology the Administrator modeled as the most appropriate compliance technology for your facility;

(B) Using the Administrator's costing equations, calculate the annualized capital and net operation and maintenance (O&M) costs for a facility with your design intake flow using this technology;

(C) Determine the annualized net revenue loss associated with net construction downtime that the Administrator modeled for your facility to install this technology;

(D) Determine the annualized pilot study costs that the Administrator modeled for your facility to test and optimize this technology;

(E) Sum the cost items in paragraphs (a)(5)(i)(B), (C), and (D) of this section; and

(F) Determine if the performance standards that form the basis of these estimates (i.e., impingement mortality reduction only or impingement mortality and entrainment reduction) are applicable to your facility, and if necessary, adjust the estimates to correspond to the applicable performance standards.

(ii) If the Director determines that data specific to your facility demonstrate that the costs of compliance under alternatives in paragraphs (a)(2) through (4) of this section would be significantly greater than the benefits of complying with the applicable performance standards at your facility, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact. This determination must be based on reliable, scientifically valid cost and performance data submitted by you and any other information the Director deems appropriate. The Director must establish site-specific alternative requirements based on new and/or existing design and construction technologies, operational measures,

and/or restoration measures that achieve an efficacy that, in the judgment of the Director, is as close as practicable to the applicable performance standards in paragraph (b) of this section without resulting in costs that are significantly greater than the benefits at your facility. The Director's site-specific determination may conclude that design and construction technologies, operational measures, and/or restoration measures in addition to those already in place are not justified because the costs would be significantly greater than the benefits at your facility.

(b) *National performance standards.*--(1) *Impingement mortality performance standards.* If you choose compliance alternatives in paragraphs (a)(2), (a)(3), or (a)(4) of this section, you must reduce impingement mortality for all life stages of fish and shellfish by 80 to 95 percent from the calculation baseline.

(2) *Entrainment performance standards.* If you choose compliance alternatives in paragraphs (a)(1)(ii), (a)(2), (a)(3), or (a)(4) of this section, you must also reduce entrainment of all life stages of fish and shellfish by 60 to 90 percent from the calculation baseline if:

(i) Your facility has a capacity utilization rate of 15 percent or greater, and

(ii)(A) Your facility uses cooling water withdrawn from a tidal river, estuary, ocean, or one of the Great Lakes; or

(B) Your facility uses cooling water withdrawn from a freshwater river or stream and the design intake flow of your cooling water intake structures is greater than five percent of the mean annual flow.

(3) *Additional performance standards for facilities withdrawing from a lake (other than one of the Great Lakes) or a reservoir.* If your facility withdraws cooling water from a lake (other than one of the Great Lakes) or a reservoir and you propose to increase the design intake flow of cooling water intake structures it uses, your increased design intake flow must not disrupt the natural thermal stratification or turnover pattern (where present) of the source water, except in cases where the disruption does not adversely affect the management of fisheries. In determining whether any such disruption does not adversely affect the management of fisheries, you must consult with Federal, State, or Tribal fish and wildlife management agencies).

(4) *Use of performance standards for site-specific determinations of best technology available.* The performance standards in paragraphs (b)(1) through (3) of this section must also be used for determining eligibility for site-specific determinations of best technology available for minimizing adverse environmental impact and establishing site specific requirements that achieve an efficacy as close as practicable to the applicable performance standards without resulting in costs that are significantly greater than those considered by the Administrator for a facility like yours in establishing the performance standards or costs that

are significantly greater than the benefits at your facility, pursuant to Sec. 125.94(a)(5).

(c) *Requirements for restoration measures.* With the approval of the Director, you may implement and adaptively manage restoration measures that produce and result in increases of fish and shellfish in your facility's watershed in place of or as a supplement to installing design and control technologies and/or adopting operational measures that reduce impingement mortality and entrainment. You must demonstrate to the Director that:

(1) You have evaluated the use of design and construction technologies and operational measures for your facility and determined that the use of restoration measures is appropriate because meeting the applicable performance standards or site-specific requirements through the use of design and construction technologies and/or operational measures alone is less feasible, less cost-effective, or less environmentally desirable than meeting the standards or requirements in whole or in part through the use of restoration measures; and

(2) The restoration measures you will implement, alone or in combination with design and construction technologies and/or operational measures, will produce ecological benefits (fish and shellfish), including maintenance or protection of community structure and function in your facility's waterbody or watershed, at a level that is substantially similar to the level you would achieve by meeting the applicable performance standards

under paragraph (b) of this section, or that satisfies alternative site-specific requirements established pursuant to paragraph (a)(5) of this section.

(d)(1) Compliance using a technology installation and operation plan or restoration plan. If you choose one of the compliance alternatives in paragraphs (a)(2), (3), (4), or (5) of this section, you may request that compliance with the requirements of Sec. 125.94(b) during the first permit containing requirements consistent with this subpart be determined based on whether you have complied with the construction, operational, maintenance, monitoring, and adaptive management requirements of a Technology Installation and Operation Plan developed in accordance with Sec. 125.95(b)(4)(ii) (for any design and construction technologies and/or operational measures) and/or a Restoration Plan developed in accordance with Sec. 125.95(b)(5) (for any restoration measures). The Technology Installation and Operation Plan must be designed to meet applicable performance standards in paragraph (b) of this section or alternative site-specific requirements developed pursuant to paragraph (a)(5) of this section. The Restoration Plan must be designed to achieve compliance with the applicable requirements in paragraph (c) of this section.

(2) During subsequent permit terms, if you selected and installed design and construction technologies and/or operational measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements of your Technology Installation and Operation Plan during the

preceding permit term, you may request that compliance with the requirements of Sec. 125.94 during the following permit term be determined based on whether you remain in compliance with your Technology Installation and Operation Plan, revised in accordance with your adaptive management plan in Sec. 125.95(b)(4)(ii)(C) if applicable performance standards are not being met. Each request and approval of a Technology Installation and Operation Plan shall be limited to one permit term.

(3) During subsequent permit terms, if you selected and installed restoration measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements in your Restoration Plan during the preceding permit term, you may request that compliance with the requirements of this section during the following permit term be determined based on whether you remain in compliance with your Restoration Plan, revised in accordance with your adaptive management plan in Sec. 125.95(b)(5)(v) if applicable performance standards are not being met. Each request and approval of a Restoration Plan shall be limited to one permit term.

(e) *More stringent standards.* The Director may establish more stringent requirements as best technology available for minimizing adverse environmental impact if the Director determines that your compliance with the applicable requirements of this section would not meet the

requirements of applicable State and Tribal law, or other Federal law.

(f) *Nuclear facilities*. If you demonstrate to the Director based on consultation with the Nuclear Regulatory Commission that compliance with this subpart would result in a conflict with a safety requirement established by the Commission, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Nuclear Regulatory Commission's safety requirement.

40 C.F.R. § 125.95 As an owner or operator of a Phase II existing facility, what must I collect and submit when I apply for my reissued NPDES permit?

. . . .

(b) *Comprehensive Demonstration Study*. The purpose of the Comprehensive Demonstration Study (The Study) is to characterize impingement mortality and entrainment, to describe the operation of your cooling water intake structures, and to confirm that the technologies, operational measures, and/or restoration measures you have selected and installed, or will install, at your facility meet the applicable requirements of Sec. 125.94. All facilities except those that have met the applicable requirements in accordance with Sec. Sec. 125.94(a)(1)(i), 125.94(a)(1)(ii), and 125.94(a)(4) must submit all applicable portions of the Comprehensive Demonstration Study to the Director in accordance with paragraph (a) of this section. Facilities that

meet the requirements in Sec. 125.94(a)(1)(i) by reducing their flow commensurate with a closed-cycle, recirculating system are not required to submit a Comprehensive Demonstration Study. Facilities that meet the requirements in Sec. 125.94(a)(1)(ii) by reducing their design intake velocity to 0.5 ft/sec or less are required to submit a Study only for the entrainment requirements, if applicable. Facilities that meet the requirements in Sec. 125.94(a)(4) and have installed and properly operate and maintain an approved design and construction technology (in accordance with Sec. 125.99) are required to submit only the Technology Installation and Operation Plan in paragraph (b)(4) of this section and the Verification Monitoring Plan in paragraph (b)(7) of this section. Facilities that are required to meet only impingement mortality performance standards in Sec. 125.94(b)(1) are required to submit only a Study for the impingement mortality reduction requirements. The Comprehensive Demonstration Study must include:

. . . .

(6) *Information to support site-specific determination of best technology available for minimizing adverse environmental impact.* If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to Sec. 125.94(a)(5)(i) because of costs significantly greater than those considered by the Administrator for a facility like yours in establishing the applicable performance standards of Sec. 125.94(b), you are required to provide to the Director the information specified in paragraphs (b)(6)(i) and (b)(6)(iii) of this

section. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to Sec. 125.94(a)(5)(ii) because of costs significantly greater than the benefits of meeting the applicable performance standards of Sec. 125.94(b) at your facility, you must provide the information specified in paragraphs (b)(6)(i), (b)(6)(ii), and (b)(6)(iii) of this section:

(i) *Comprehensive Cost Evaluation Study.* You must perform and submit the results of a Comprehensive Cost Evaluation Study, that includes:

(A) Engineering cost estimates in sufficient detail to document the costs of implementing design and construction technologies, operational measures, and/or restoration measures at your facility that would be needed to meet the applicable performance standards of Sec. 125.94(b);

(B) A demonstration that the costs documented in paragraph (b)(6)(i)(A) of this section significantly exceed either those considered by the Administrator for a facility like yours in establishing the applicable performance standards or the benefits of meeting the applicable performance standards at your facility; and

(C) Engineering cost estimates in sufficient detail to document the costs of implementing the design and construction technologies, operational measures, and/or restoration measures in your Site-

Specific Technology Plan developed in accordance with paragraph (b)(6)(iii) of this section.

(ii) *Benefits Valuation Study*. If you are seeking a site-specific determination of best technology available for minimizing adverse environmental impact because of costs significantly greater than the benefits of meeting the applicable performance standards of Sec. 125.94(b) at your facility, you must use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at your site and the benefits achievable by meeting the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

(A) A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

(B) Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must submit a determination of entrainment survival at your facility based on a study approved by the Director;

(C) An analysis of the effects of significant sources of uncertainty on the results of the study; and

(D) If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in

consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate qualifications depending upon the materials to be reviewed.

(E) A narrative description of any non-monetized benefits that would be realized at your site if you were to meet the applicable performance standards and a qualitative assessment of their magnitude and significance.

40 C.F.R. § 230.75. Actions affecting plant and animal populations.

Minimization of adverse effects on populations of plants and animals can be achieved by:

. . . .

(d) Using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics. Habitat development and restoration techniques can be used to minimize adverse impacts and to compensate for destroyed habitat. Use techniques that have been demonstrated to be effective in circumstances similar to those under consideration wherever possible. Where proposed development and restoration techniques have not yet advanced to the pilot demonstration stage, initiate their use on a small scale to allow corrective action if unanticipated adverse impacts occur;